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CARCINOMA OF THE UTERUS*

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In spite of more efficient methods of treating cancer than formerly were available, and in spite of extensive educational programs to help the medical profession and the laity recognize the early signs of this disease, we in the United States are confronted with the appalling truth that one death out of every seventeen is from cancer. Statistics also show that more women die as the result of cancer of the uterus today than previously. According to Hoffman, in the United States more than 13,000 women die annually from cancer of the uterus.

At present, the increase in the number of deaths from cancer of the uterus is real, not apparent. Some authors have suggested that this increase is the result of increased accuracy of diagnosis. This does not seem likely as the symptoms of advanced cancer of the uterus could hardly be confused with those of any other disease. One reason for the increased incidence of deaths from this cause, of course, is preventive medicine and higher standards of living, as the result of which more people live to the cancer age. Furthermore, there is ample proof that negresses in this country, who rarely had this disease sixty years ago, now have it almost as frequently as white women.

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Recent statistics show that cancer develops in the uterus more frequently than in any other organ or part of the female body. Of 4,407 cases of cancer of the uterus observed at The Mayo Clinic from 1910 to 1938 inclusive, 3,273 were primary in the cervix and 1,134 were in the uterine body. Of this number, 3,097 women with cervical cancers and 1,122 women with primary cancers in the body of the uterus received treatment at The Mayo Clinic. The ratio of carcinoma of the cervix to carcinoma of the uterine body in this series is as 2.9 to 1. Since indications for treatment vary with the site of the primary growth, as well as with the extent of the disease and its degree of malignancy, carcinoma of the cervix and of the uterine body must be considered separately (tables 1, 2 and 3). Tables 1 and 2 show hospital mortality in treated cases of carcinoma of the cervix

TABLE 1
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy	345	11	3.2
Vaginal hysterectomy	93	2	2.2
Irradiation without hysterectomy at this clinic	2306	26	1.1
Total treated cases	2744	39	1.4

TABLE 2
ADENOCARCINOMA, UTERINE CERVIX
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy	43	4	9.3
Vaginal hysterectomy	13	0	
Irradiation without hysterectomy at this clinic	120	2	1.7
Total treated cases	176	6	3.4

TABLE 3
CARCINOMA, FUNDUS OF UTERUS
1910-1938

Type of treatment at clinic	Patients	Hospital Deaths	
		Number	Per cent
Total abdominal hysterectomy	690	31	4.5
Vaginal hysterectomy	124	4	3.2
Subtotal abdominal hysterectomy	65	6	9.2
Irradiation without hysterectomy at this clinic	343	5	1.5
Total treated cases	1222	46	3.8

from 1910 to 1938, inclusive. Table 3 shows hospital mortality in treated cases of carcinoma of the corpus uteri from 1910 to 1938, inclusive. We must ever keep in mind, however, that many of the patients in whom irradiation alone was used were hopelessly inoperable and alleviation of symptoms was all that could be hoped for from the start. Some of the cases, also, in which hysterectomy was performed showed extensive growths with peritoneal involvement at the time of the operation and with our present knowledge would now be considered inoperable.

Most of the 65 women on whom subtotal abdominal hysterectomy was done probably now would be treated by irradiation alone. Two of the deaths were due to diabetic coma. They occurred in patients on whom operation was performed before the introduction of insulin.

POSSIBLE ETIOLOGY

The greatest difficulty in efficient treatment, and especially in the prophylactic treatment, of cancer is a lack of knowledge of its etiology. It is known that heredity has a definite influence; at least a susceptibility or tendency to the disease is transmitted. It is also known that chronic irritation in susceptible people is often a predisposing factor. In the cervix, chronic infection or stricture probably plays an important part. While it is impossible to prove Cohnhein's hypothesis that all cancers start from embryonic rests of epithelial cells, the hypothesis is nevertheless generally accepted as it seems logical and cannot be disproved. All cancers, in fact all malignant tumors, are made up of more or less normal cells in various states of development and they differ from those in other bodily tissue only in that they grow without apparent control and at the expense of normal tissues. Furthermore, cells from a primary growth on being transported to other sites by lymph, blood stream, or by ingrafting into an open wound, will continue to grow in a manner similar to that of the parent growth.

GRADE OF MALIGNANCY

If the presence of cancer is once accurately diagnosed by examination of a microscopic section, permanent cure can be obtained only by radical and efficient treatment. The type of treatment and the ultimate result of such treatment will depend not only on the extent of the disease, but also in a large measure on the grade of malignancy present, as suggested by Broders.[2] Broders' classification, which takes into consideration the amount of differentiation of the cells in the active, growing portion of the tumor, is of great prognostic value. In a tumor of grade I, there is little departure from the normal type of adult cell and, as a result, such tumors are of a low degree of malignancy. Tumors of grades II and III show less differentiation and those of grade IV show marked differentiation and represent the most active type of malignant disease. In spite of the fact that some pathologists do not place much value on the grading of malignant tissue and contend that sections from different parts of a single growth will suggest different degrees of malignancy, it has been said that tissue taken at different times may show various percentages of differentiation of the cells. There is no doubt that changes do take place and various factors like infection, degeneration and so forth influence the microscopic picture. After a trial in a very large series of cases, however, we are satisfied that the method is of real prognostic value and we rely on it a great deal. There is no doubt that the training and personal equation of the pathologist are most important in evaluating the method.

Tables 4, 5 and 6 show a constant decrease in the number of patients who sur-

vive five or more years as the degree of malignancy increases. The classification of Schmitz, which takes into account the amount of local involvement, has been accepted by many gynecologists; it is a useful but by no means accurate method of

TABLE 4
CARCINOMA, FUNDUS OF UTERUS
SURVIVAL RATES, ACCORDING TO GRADE OF MALIGNANCY

			Lived 5 or more years after treatment				Lived 10 or more years after treatment	
Grade	Patients treated*	Patients traced	Patients	Percentage of traced patients	Patients treated*	Patients traced	Patients	Percentage of traced patients
I	59	57	45	78.9	20	19	17	89.5
II	149	142	82	57.7	52	49	21	42.9
III	35	35	15	42.9	14	13	6	46.2
IV	46	44	14	31.8	23	23	4	17.4
Not graded	573	562	304	54.1	538	522	229	43.9
Total	862	840	460	54.8	647	626	277	44.2

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

TABLE 5
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX
SURVIVAL RATES ACCORDING TO GRADE OF MALIGNANCY

			Lived 5 or more years after treatment				Lived 10 or more years after treatment	
Grade	Patients treated*	Patients traced	Patients	Percentage of traced patients	Patients treated*	Patients traced	Patients	Percentage of traced patients
I	5	5	3	60.0	1	1	0	0
II	195	190	78	41.1	126	119	32	26.9
III	699	678	257	37.9	452	435	111	25.5
IV	528	511	172	33.7	372	354	87	24.6
Not graded	1016	988	202	20.4	941	906	138	15.2
Total	2443	2372	712	30.0	1892	1815	368	20.3

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

TABLE 6
ADENOCARCINOMA, UTERINE CERVIX
SURVIVAL RATES ACCORDING TO GRADE OF MALIGNANCY

			Lived 5 or more years after treatment				Lived 10 or more years after treatment	
Grade	Patients treated*	Patients traced	Patients	Percentage of traced patients	Patients treated*	Patients traced	Patients	Percentage of traced patients
I	15	15	12	80.0	5	5	3	60.0
II	47	47	18	38.3	29	27	6	22.2
III	24	24	7	29.2	15	14	3	21.4
IV	12	12	3	25.0	5	5	1	20.0
Not graded	34	34	15	44.1	32	31	11	35.5
Total	132	132	55	41.7	86	82	24	29.3

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

tabulating cases. According to this classification apparently early lesions are grouped in stage I; stages II and III are comprised of more advanced lesions and stage IV represents the most advanced lesions without hope of successful treatment. We must not be misled, however, by fixation or infiltration in the broad ligaments, as this may be the result of a coexisting inflammatory disease or endometriosis. The preoperative value of this method of classification is much greater in cases of cancer of the cervix than in those of malignancy of the fundus uteri.

The extent of the local growth is no doubt of great importance from a prognostic standpoint and as an indication for treatment, but it does not represent as good a guide to the ultimate outcome as the histologic appearance of the predominant cells. Experience has shown that the greater the differentiation or the more the cells of a tumor approach the normal histologic structure of the part the greater the resistance to radiotherapy. For such tumors radical surgical removal gives the best results. Highly malignant tumors, however, with marked cellular differentiation respond more favorably to both roentgen rays and radium therapy and except in a very early stage are difficult to cure by surgical measures alone.

Cancer developing from the squamous-cell epithelium of the cervix presents a different histologic picture and carries a graver prognosis than cancer developing from the cylindrical gland-bearing cells that line the cervical canal. The former growths are known as "squamous-cell carcinomas," "epitheliomas" and "epidermoid cancers," and they constitute more than 90 per cent of all cervical cancers. Those developing from cylindrical cells are called "adenocarcinoma" and in this series they constituted 5.12 per cent of cervical cancers. The case histories of 3,437 patients who had a diagnosis of cancer of the uterus made at The Mayo Clinic between January 1, 1910 and December 31, 1933 were reviewed. In this series there were 2,443 (71 per cent) squamous-cell epitheliomas of the cervix; 132 (3.5 per cent) adenocarcinomas of the cervix and 862 (25.2 per cent) adenocarcinomas of the corpus uteri. The results after treatment are shown in tables 7, 8 and 9.

TABLE 7
SQUAMOUS-CELL EPITHELIOMA, UTERINE CERVIX
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Lived 5 or more years after treatment					Lived 10 or more years after treatment				
	Patients treated*	Hospital deaths, %	Patients traced	Patients	Percentage of traced patients	Patients treated*	Hospital deaths, %	Patients traced	Patients	Percentage of traced patients
Total abdominal hysterectomy with irradiation	165†	1.2	161	92	57.1	132	1.5	129	56	43.4
Total abdominal hysterectomy without irradiation	133‡	4.5	129	44	34.1	124§	4.0	119	32	26.9
Vaginal hysterectomy with irradiation	32	0	31	15	48.4	30	0	30	10	33.3
Vaginal hysterectomy without irradiation	60	3.3	60	28	46.7	58	3.4	57	18	31.6
Irradiation without hysterectomy at this clinic	1893	1.0	1834	521	28.4	1447	0.8	1377	244	17.7

Operation for diagnosis only (160 cases) not included.

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

†Includes 13 Wertheim hysterectomies.

‡Includes 13 Wertheim hysterectomies with one hospital death.

§Includes eight Wertheim hysterectomies.

TABLE 8

ADENOCARCINOMA, UTERINE CERVIX
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Patients treated*	Hospital deaths, %	Patients traced	Lived 5 or more years after treatment: Patients	Lived 5 or more years after treatment: Percentage of traced patients	Patients treated*	Hospital deaths, %	Patients traced	Lived 10 or more years after treatment: Patients	Lived 10 or more years after treatment: Percentage of traced patients
Total abdominal hysterectomy with irradiation	13	0	13	8	61.5	9	0	8	4	50.0
Total abdominal hysterectomy without irradiation	12	16.6	12†	9	75.0	7	28.6	7	3	42.9
Vaginal hysterectomy with irradiation	7	0	7	6	85.7	7	0	7	5	71.4
Vaginal hysterectomy without irradiation	6	0	6	3	50.0	5	0	4	2	50.0
Irradiation without hysterectomy at this clinic	89	1.1	89	28	31.5	54	1.9	54	15	27.8

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.
†Includes one Wertheim hysterectomy.

TABLE 9

CARCINOMA, FUNDUS OF UTERUS
SURVIVAL RATES, ACCORDING TO OPERATION AND IRRADIATION

Treatment	Patients treated*	Hospital deaths, %	Patients traced	Lived 5 or more years after treatment: Patients	Lived 5 or more years after treatment: Percentage of traced patients	Patients treated*	Hospital deaths, %	Patients traced	Lived 10 or more years after treatment: Patients	Lived 10 or more years after treatment: Percentage of traced patients
Total abdominal hysterectomy with irradiation	194	1.0	191	129	67.5	122	0	121	74	61.2
Total abdominal hysterectomy without irradiation	306	8.5	296	197	66.6	236	7.6	230	125	54.5
Vaginal hysterectomy with irradiation	22	0	22	14	63.6	21	0	20	9	45.0
Vaginal hysterectomy without irradiation	61	4.9	59	35	59.3	56	5.4	54	28	51.9
Irradiation without hysterectomy at this clinic	230	0.9	227	61	26.9	171	0.6	167	26	15.6

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

If progress is to be made in the treatment of carcinoma of the uterine cervix it will be the result of specific treatment not known today and it will consist of prophylactic treatment against predisposing factors rather than active treatment of the condition once it is well established. The early signs of cancer of the cervix are uniformly listed as irregular spotting, a foul discharge of a watery nature, and pain. Unfortunately these are generally the signs of a well-advanced growth, but it is surprising how frequently one sees extensive involvement without either bleeding, foul leukorrhea or pain.

TREATMENT

In considering prophylactic treatment we must consider of first importance chronic irritation from infection. It has long been considered that parity has an important bearing on cervical cancer, although statistics show that practically the same proportion of nulliparous women in the cancer

age have cervical cancers as those who have had children. The important consideration, therefore, is not the treatment of the traumatic lesions of childbirth alone but the treatment of cervical infections. It has long been recognized, however, that lacerations predispose to endocervicitis and strictures; therefore, repair of such lacerations is always indicated at an early date.

Once cancer of the cervix is diagnosed the serious matter of advising treatment must be considered. The only methods available are radiotherapy and operation. Colloids of some of the heavy metals have been advised, and there is no doubt that these have a more destructive action on malignant tissue than on normal cells; however, the curative dose is too close to the lethal dose to make their use satisfactory or dependable. The local application of caustics and extensive destruction of the local growth by cauterization are not practical, and are responsible for the formation of many fistulas and for so few cures. None of the specific treatments that have been advised so far are of any value. Much experimentation along this line is being done at present and it is hoped that some day a satisfactory serum will be developed.

After a critical analysis of the results obtained by either the Wertheim type of abdominal hysterectomy or by Schauta vaginal hysterectomy, taking into consideration the operative mortality rates and the expectation of life following operation as recorded by men both in this country and abroad, it is not surprising that a decided change has taken place in the treatment of this disease during recent years. In most gynecologic clinics radium and deep roentgen therapy have largely supplanted surgical procedures. A few surgeons still operate on growths in stage I or stage II, according to Schmitz' classification, but even in these cases the patient should be given the added protection of efficient irradiation either before or after operation.

This change is largely attributable to the poor results obtained when operation was the only recognized type of treatment. One reason for the poor results even in operable cases was that an incomplete operation was frequently done, with rapid recurrence of the malignant lesion. In other cases, a radical procedure was attempted by a surgeon who was not experienced in this special type of operation and high mortality and morbidity rates resulted. In still other cases, operation was attempted in hopelessly inoperable cases and an incomplete operation resulted.

The radical Wertheim operation, as Ward wrote, "requires skill and experience to be properly performed and it must not be confused with the usual operation of panhysterectomy which is frequently done for carcinoma of the cervix. The difference between an ordinary hysterectomy and the radical operation may be readily understood when compared to a simple mastectomy and the modern radical operation for carcinoma of the breast. Simple hysterectomy for carcinoma of the cervix is followed by fatal recurrences in nearly 100 per cent of cases." There is no doubt that Ward's statement is close to the truth as far as cancer of the breast is concerned but you will notice from my tables that I have classified the operations as total abdominal hysterectomy and vaginal hysterectomies rather than as Wertheim hysterectomies and Schauta vaginal hysterectomies because many of the earlier cases were not so designated. There is no doubt that a more radical operation than the regular panhysterectomy that is advisable for benign cases must have been done in most cases but many of them could not be classed as the more radical procedures. If only Wertheim's or Schauta's operations had been performed, I have no doubt that I would be able to show a higher operative percentage of five year and ten year cures but would have a higher operative mortality rate. I am satisfied that care in handling the local growth in such a way as to avoid implantation of cancer cells into the operative field is most important and a wide removal of the parametrium in the bases of the broad ligaments and at the base of the bladder with the regional lymph nodes and with a generous cuff from the vault of the vagina

is much more important than the wide removal of more distant glands and pelvic peritoneum.

There is no doubt that efficient surgical treatment, when attempted only in suitable cases and by surgeons accustomed to the tedious dissection necessary, gives a relatively high percentage of cures; and when such treatment is given in conjunction with irradiation under the direction of an expert in this field of therapy, the results are so good that I feel that further trial is justified in spite of the encouraging results obtained by using irradiation alone. In no other disease is it more important that all forms of treatment be carried out by specialists.

JUSTIFIABLE SURGICAL PROCEDURES

With our present knowledge, the only surgical treatment justifiable, even for lesions of microscopic size, is either the Wertheim abdominal hysterectomy or the Schauta vaginal hysterectomy, both of which are difficult and time-consuming operations even when done by those accustomed to the technic. These procedures should not be undertaken, however, except for patients who are good surgical risks from every standpoint. Before attempting a Wertheim operation, the local lesion should be thoroughly destroyed by the actual cautery, or by what I consider a better method, namely, by thorough coagulation by the application of a saturated solution of zinc chloride. If the Schauta operation is attempted, after local care of the malignant growth, a cuff from the vault of the vagina should be stitched over the cervix. Postoperative irradiation, as I have said, should be used in all cases. Even in the very early cases it gives an added degree of safety. Unfortunately, we learn little from reviewing statistics, as much of the surgery done in the past, and unfortunately still being done, is not radical enough or is done in poorly selected cases with a resulting mortality rate that is too high. If a hospital mortality cannot be kept below 5 per cent, or at the outside, 7 per cent, all cases should be turned over to radium and roentgen ray therapy.

Even if we admit that the treatment of a selected group of early cervical cancers is surgical, and if men accustomed to the special type of operation indicated perform it, we are immediately impressed with the fact that such cases are rarely seen. At The Mayo Clinic, 593 new cases of carcinoma of the cervix were encountered in the years 1930 to 1934, inclusive, but in only 52, or 8.76 per cent, was operation undertaken and, in several of these cases, the condition was found to be more extensive than the results of the preoperative examination had suggested. Besides these cases in which operation was undertaken, there were 11 cases in which the lesions were considered early and 44 in which they were classed as borderline. In these patients, treatment was by irradiation. In other words 81.12 per cent of carcinomas of the uterine cervix encountered at The Mayo Clinic are inoperable when first seen.

PROGNOSIS

We at The Mayo Clinic are not encountering cases of carcinoma of the cervix any earlier in the course of the disease than we did 25 years ago. The early cases are almost without exception accidentally encountered in the course of general examinations. In spite of this gloomy picture, however, the fact remains that more women are being cured of cancer of the cervix today than at any previous time.

If adenocarcinoma of the cervix is discovered early, the prospect for cure by surgical means is definitely better than for squamous-cell carcinoma, because adenocarcinoma is frequently of a low degree of malignancy. Unfortunately, however, the first symptom of an adenocarcinoma of the endocervix is frequently a brisk hemorrhage. This results from ulceration of a cervical artery and in most cases, by the time that this occurs, the condition is hopelessly inoperable due to malignant extension into the parametrium and metastasis.

The outlook in cases of cancer of the body of the uterus is much more hopeful than that in cases of cancer of the cervix;

TABLE 10
SARCOMA OF FUNDUS OF UTERUS
SURVIVAL RATES

	Patients treated*	Patients traced	Lived 5 or more years after treatment: Patients	Lived 5 or more years after treatment: Percentage of traced patients	Patients treated*	Patients traced	Lived 10 or more years after treatment: Patients	Lived 10 or more years after treatment: Percentage of traced patients
Sarcoma	85	84	51	60.7	58	56	30	53.6

*Inquiry as of January 1, 1939. The five year group comprises the patients treated five or more years prior to the time of inquiry, that is, 1933 or earlier; the 10 year group comprises those treated in 1928 or earlier.

in fact, the prospect for cure of cancer of the body of the uterus is better than that of cancer of the same degree of malignancy in any other part of the body. This is probably in a large measure due to the fact that most cases occur at or after the menopausal age when there is no doubt a definite change in the vascular and lymphatic drainage from the genital organs. The myometrium is also a barrier to extension to other organs. As a rule, cancer of the body of the uterus develops slowly and metastasis occurs relatively late. On this account it is not necessary or advisable to submit patients who have cancer of the body of the uterus to the radical surgical procedures that are indicated for cervical cancer. A panhysterectomy, after stitching the cervix shut or after packing the uterine cavity with gauze after it has been swabbed out with a saturated solution of zinc chloride in order to destroy any loose cells, is satisfactory. I am satisfied that failure to do this accounts for many of the recurrences which are due to ingrafting of cancer cells into the wound at the time of the hysterectomy.

IRRADIATION

As a result of the encouraging results obtained in the treatment of epidermoid cancer of the cervix by irradiation, many gynecologists and radiologists are now advising radiotherapy alone in the treatment of this condition also, but I am satisfied that when the patient is a good surgical risk, there is no good reason to change from surgical treatment which has given such good results in a large series of cases to some other form of therapy.

In the past I have only advised postoperative irradiation when the growth was found to be of a high degree of malignancy or when it had extended well into the myometrium. Probably the percentage of cures would be slightly higher if radiotherapy were used routinely in all cases. When patients are poor surgical risks due to senility, and serious constitutional disease or obesity, or when they refuse surgical treatment or have an extensive growth that has probably extended beyond the uterine body, then thorough treatment by radium and roentgen rays is advisable and surgical treatment should not be attempted.

In this same period, from 1910 to 1933 inclusive, 85 cases of sarcoma of the uterine body were treated at The Mayo Clinic and we were able to trace all but one case. Of these 85 patients, 60.7 per cent lived five or more years and of the 58 patients operated on ten or more years ago, 56 of them were traced and 30, or 53.6 per cent, were still alive (table 10).

SUMMARY AND CONCLUSIONS

1. There is no doubt that progress is being made with a better understanding of the physical properties and chemical reactions of radium and roentgen rays.

2. The type of surgical procedure indicated for carcinoma of the uterus will probably never be improved.

3. If operation is to continue to be considered a justifiable form of treatment for squamous-cell carcinoma of the cervix, great care must be exercised by experienced surgeons to operate only in early cases and in those cases that are good surgical risks. Otherwise, the results will not be any better than those obtained by the use of irradiation alone and there will be an unwarranted high mortality rate.

4. Operation must still be considered the best treatment for cancer of the corpus uteri in the majority of cases.

5. The prospect for cure of sarcoma of the body of the uterus after treatment is not quite as great as it is after treatment for carcinoma at the same site.

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DISCUSSION

Dr. Peter Graffagnino (New Orleans): Certainly no clinic in this or any other country can present reports more authoritative than those from The Mayo Clinic due to the wealth of material at their disposal.

Not having read this paper before, I am in no position to analyze Dr. Masson's figures, but I believe that they are comparable to the average figures reported by other clinics.

There are a few things I want to make clear in the minds of the general practitioner and lay public about cancer, particularly cancer of the uterus. It has been said that one woman out of every eight who reaches the age of forty dies of cancer of the uterus. This statement is incorrect. You realize we would not have enough hospitals to take care of all of the cancer cases in the country if this were true. As a matter of fact, less than one woman out of a thousand develops cancer of the uterus.

A great deal has been said about the higher incidence of cancer in married than in unmarried women. I assure you that the civil state of the patient seems to have nothing to do with the incidence of cancer. The same thing is true concerning irritations and lacerations of the uterus. As many cases of cancer of the cervix without laceration, infection or irritation occur as otherwise. For every woman who develops cancer after irritation or laceration, there are hundreds of thousands who do not develop it under the same conditions. Therefore, the cause of cancer cannot be attributed to trauma alone; there must be other factors present.

The diagnosis of cancer of the cervix is of great importance. Fortunately for women, the organ most often involved is situated in such a position as to be readily exposed for inspection, palpation and treatment. There is no reason why the diagnosis of early cancer cannot be made after proper examination by speculum or biopsy. There is certainly no more, and sometimes less difficulty in the diagnosis of cancer than in various other conditions.

How can this early diagnosis be made? First, the cervix must be adequately exposed, adequately illuminated, and after this is done, should be deliberately and thoughtfully examined. The physician, after due consideration, should be able to conclude whether or not the possibility of a cancerous or precancerous condition exists. Should there be the slightest question, it is his duty to secure a specimen of tissue and submit it to the pathologist for diagnosis. The microscope alone makes the diagnosis. The eye and the finger cannot positively diagnose this condition. I believe that this also applies in advanced suspected cases of cancer; the microscope alone will tell whether it is truly cancer or not.

Concerning the treatment of cancer, I believe that cancer is curable in its early, "localized" stage. This curability depends, however, upon prompt and adequate measures of treatment. What are these? Radiation, either by radium or deep therapy, in combination or alone, offers the best possible measures for the relief of cancer in the early stages, providing adequate dosage is employed.

There is a question in my mind as to whether surgery plays any part today in the cure of early cancer. The reason I make this statement is that not long ago I reviewed the work of Dr. Pearson, a pathologist, who analyzed the autopsy studies of cancer cases that came before him. Here are some of the interesting facts reported: It was found that most of these patients died from peritonitis following surgery. Cultures of the parametrium in 65 cases showed streptococcus in 36 cases and the operative mortality in this group was 61.1 per cent. In the cancer deaths that occurred after radiation, he found that 31 per cent had not only the proximal but distal glands involved; that in 15 per cent of the so-called early cancer cases, the proximal glands were involved.

In regard to fundal carcinoma, surgery is still the best method of treatment.

Dr. D. C. McBride (Alexandria): There is nothing I can add to the paper except I think we should keep in mind the Wertheim operation is very difficult to do and should not be attempted unless one is skilled in this branch of surgery.

Dr. H. G. F. Edwards (Shreveport): As the radiation therapist and Clinical Director of the Tumor Clinic at the Shreveport Charity Hospital, it has been my misfortune to examine, treat and follow more than 700 cases of cancer of the uterus. Sixty-five of these were carcinomas of the fundus; 70 per cent were advanced cases. I am glad to hear Dr. Graffagnino express optimism in the cure of carcinoma of the uterus with irradiation therapy. I am not quite as optimistic in regard to grades III and IV of cervical cancer.

Dr. Masson has brought out the important fact that carcinoma of the cervix does not present early signs and symptoms. When the patient starts bleeding and has leukorrhea, this does not indicate

early signs of cancer. The onset of cancer is advanced to a stage when the cervical glands are involved and erosion of the mucous membrane is taking place and there is bleeding and ulceration there. Recently, Novak has brought attention to precancerous intra-epithelial carcinoma of the cervix. Whether or not this is to be considered as early carcinoma or regarded as a precancerous lesion, remains to be seen. In my personal opinion, I have always held that it is not necessary that the basal membrane be involved to say we have cancer. I have always held that when one finds carcinoma cells on the so-called safe side of the fence, that it is cancer and it must get on the other side of the fence in some fashion.

Dr. Masson and Dr. Graffagnino spoke about radiation and what I want to bring out is that radiation of the cervix and fundus carcinoma must be complete irradiation; more than a single capsule of radium in the canal. A little dose can and will cure cancer in stage I and sometimes stage II, but a patient who has stage III or IV and is treated with radium alone, can not hope for a cure in that fashion. We have studied patients using protracted doses of high voltage x-rays somewhat after the Coutard method. We find that by the time 2000 roentgens were administered to each of four pelvic fields and protracted over 20 to 30 days, all of the carcinoma cells in the cervix appear to have been destroyed and we find a more suitable application for the radium at this time. If, however, the radium is not applied in three weeks after this high voltage treatment, there is regrowth of the carcinoma cells because of a disturbance in the blood supply and lowered tissue resistance.

Dr. Graffagnino has reported a case of cancer of the cervix, stage IV, in which postmortem examination revealed that all the cancer in the treated area from the iliac crest down was destroyed. This has led me to a new method of attack and now fields above the iliac crest are employed which include para-aortic nodes. Where this will lead, I do not know, but it does offer some assistance.

A drug which has been of material benefit and turned many an unfavorable case into a happy cure has been sulfanilamide. Infection very often defeats a cure, more so than anything else. Sulfanilamide will clear up the ulcerated areas and then you many go ahead with treatment and pull the patient through a bad spot. My experience with lead therapy has been limited. With two cases, I have noticed some results.

Dr. Masson (In conclusion): I want to stress the fact that I am not a strong believer in operation for carcinoma of the cervix of the uterus. I do not think there is any indication for surgical treatment if a given surgeon feels that the operative mortality is going to be greater than 5 or 6 per cent. I do not think we are justified in subjecting patients to serious operations when the end results are so close to those obtained by irradiation alone. In The Mayo Clinic we use a great deal of radium. I think we have the very latest type of x-ray machines and I know that those in charge of these departments believe in thorough treatment. I think, in operating on patients with cancer of the cervix, one should only operate on good surgical risks. I think the mortality should be down to 4 per cent. I feel that radium and roentgen therapy are, in most cases, indicated, and in my paper I mentioned that we operate on just a little more than 8 per cent of the patients suffering from cervical cancer that come to the clinic. Most of these carcinomas are found accidentally in the course of a general examination and would be classified as stage I or II on a basis of I to IV.

There was one thing mentioned in the discussion, "that all cases of cancer are curable." I cannot agree with that statement. The same thorough treatment with radium and x-ray will have very definite action in one case and will not in another. You cannot pile on irradiation.

Most statistics on irradiation give a three year cure rate. In going over my cases, I was struck by the fact that the ten year cure rate is almost as good as the five year cure rate.

Another thing that interests me is the fact that by surgical treatment we occasionally cure an epithelioma of the cervix with gland involvement and I do not think this is possible by irradiation alone.

After the introduction of radium I stopped operation on all cervical cancers but after seeing the results obtained by a few surgeons abroad and seeing so many cases in which the results were only temporary following irradiation alone, I have again decided to treat by a combination of surgical and roentgen therapy all patients in the early stages of cervical cancer who are good surgical risks. I have adhered to this plan for the last ten years and am well pleased with the results.

TUBERCULOSIS*

A SYMPOSIUM

TUBERCULIN TESTING IN PUBLIC SCHOOLS

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Tuberculin testing in public schools is the outcome of a gradual accumulation of knowledge as to the best method of utiliz-

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ing tuberculin, the important diagnostic tool introduced by Koch in 1890. The subcutaneous test was first used. This method often caused the reactivation of previously latent lesions, and after a rather extensive use for a short period it was generally abandoned as being too dangerous. Then the pediatricians reintroduced tuberculin testing of babies and children by the Pirquet test, and a year or so later the Mantoux test, by intradermal injection, was introduced. For a long time use of tuberculin was confined to pediatricians. When tests were made on older individuals everyone reacted after the age of 14 or 16. It was not until the Framingham survey in 1917 and 1918, the first attempt in this country to make an epidemiologic tuberculosis survey, that it began to be realized that not everyone, particularly in rural and small town districts, was infected before adult life. Following this, other series of tuberculin tests in various parts of the country showed percentages of children reacting, varying from 10 to 25 per cent in the grade schools. Rathbun, in Chautauqua County in New York in 1928 to 1930, demonstrated that tuberculin tests, followed by x-ray of positive reactors, were a very valuable means of detecting early tuberculosis, particularly in high school boys and girls, and to a lesser degree among the grade school students. He found 25 per cent of his school girls and boys reacting positively to tuberculin.

Shortly after this McCain, in North Carolina, found similar percentages; 22 per cent of white and 27 per cent of colored children reacting. About this time, between the middle 1920's and early 1930's, it began to be realized that the incidence of positive reactions to tuberculin was decreasing. Harrington, in Minneapolis, found between 1926 and 1936, the incidence of positive tuberculin at the age of ten dropped from 50 to 17 per cent. At the age of 14, it dropped from 70 to 26 per cent. It also came to be recognized that between the ages of 5 and about 14, preschool age and puberty, there was relatively little value in testing school children. This age, from 5 to 14, while showing an increasing percentage of reaction to tuberculin of from 2 to 4 per cent a year, showed very little active tuberculosis. Surveys made in various parts of the country of grade school children disclosed few cases of tuberculosis as a result. Hence it has come to be felt that tuberculin testing in schools is a valuable means of finding cases of tuberculosis, but that it is best restricted to the high school group. All over the country, except where they wish to make surveys for information on the incidence of infection alone, the surveying of the grade schools is being dropped and rather intensive study of high school ages is substituted.

REASONS FOR TESTING

The purposes of tuberculin testing in high schools are as follows: First, purely and simply as a case-finding method. This is valuable among the students even though a relatively small percentage of cases is found. Seventy-five to 90 per cent of the cases found by tuberculin are in the early stages. When a large number of students are examined this brings under medical care quite a considerable number of persons who can be treated and cured readily in this early stage. Also it is a means of finding cases among the contacts of these students. X-rays are used where positive reaction is found. In many instances, particulary where the percentage of students reacting is small, x-ray is a successful method of locating positive open cases of tuberculosis in the community.

Second, not less important than its use as a case-finding method, is the value of tuberculin testing as an educational measure. This of course is more difficult to estimate in terms of percentages, of dollars and cents, or other accurate figures, but a tuberculin testing campaign has great value in educating the students. It is part of their health education. It is a test which they feel on their own skins and which brings home to them, therefore, a very real sensation to stimulate the gray matter of the brain. They ask questions and find out about tuberculosis. We feel this is a very important result of the tuberculin testing. Also, it educates the parents. It makes

them ask questions, often to the embarrassment of the family physician. It is a necessary function on his part to meet those questions and to attempt to explain what a positive tuberculin reaction means to the student and to his family.

Finally, the purpose of tuberculin testing is to gather data on the incidence of tuberlosis in any given community. In this way we are collecting evidence as to the infection rate in all parts of the country and evidence, as I pointed out, of the decline of this infection, which is useful in directing our measures for the future.

METHOD OF TESTING

The method of using the tuberculin testing in the schools is more or less standardized. The same method has been used here in New Orleans for the past six years as originally outlined by Sullivan and has not been deviated from. The only change has been that we have made the shift from testing the grade school pupils to concentration upon the students in the high schools. The first and perhaps the most important part of the whole method is instruction. We go around and talk to the members of the high school. We take movies with us and project them wherever apparatus is available and try to inform the boys and girls exactly what the tuberculin test is for. We lay emphasis on freedom of choice of the individual as to whether he shall have the test or not and the need for parental consent. We also emphasize the fact that this is done as a privilege; but that if positive findings are made, he is to be referred to the care of his own doctor. Each student gets a yellow slip, explaining the purpose of the test, information that it is necessary for the consent card to be signed by the parent and about the follow-up which will be made with regard to x-rays and medical care. They also receive a little folder provided by the National Tuberculosis Association, describing in simple terms the meaning of the tuberculin test. Each student also receives a consent card which is to have the student's name and address on it, questions as to whether any tuberculous contacts are in the home, and a question asking the family physician's name and address. A parent's signature must be affixed as no test is given without a signature on the card, held in the hand of the student, when he comes in for the test.

TECHNIC

Of course, you are probably familiar with the technic. The arm should be wiped off with alcohol, the platinum needles flamed between each two injections. Five one-thousandths milligram of purified protein derivative is given intradermally. Great care is taken not to inject beneath the skin as this may be dangerous. The test is read at 48 hours. If there is definite induration, it is positive; the doubtful cases are called negative. Those students who react positively are then referred for chest films. These are done at cost and paid for by the Christmas Seal Committee. They are all read by one man and classified by him. Reports are sent to the parents when the test is positive. All positive x-rays are reported to the family physician.

ADVANTAGES OF THE TEST

This method of mass testing of large numbers of students has certain great advantages over any effort to test the students in private practice or in homes. In the first place we can get these students just at this age when they are old enough so that the case-finding method is of value. In another year those graduating from high school will be scattered and cannot be reached. In the second place it is quicker and more convenient to do a large number of tests than one or two; one man can do 100 or 150 or more in an hour. Of course the element of economy comes into the picture; purified protein derivative, for instance, is put up in ampoules for 100 injections. Ordinarily for a single injection it comes in ampoules for ten, which is correspondingly more expensive.

This method of mass testing reaches various individuals in the community who cannot be reached through ordinary channels, since these boys and girls reached in schools in the poorer districts would never be able to pay for injections by their own

physicians and belong to the class of the population in which tuberculosis is most prevalent. This is particularly true among the colored students.

Also mass testing has a great advantage of uniform interpretation since all cases are read alike and classified accordingly. As a result of this method, we get about 30 per cent of the school population among the white students to bring in consent cards and have the tuberculin test. Among the colored high school students, we have 50 per cent consenting to the test. In 1937 and 1938 there were 3,461 boys and girls in high schools who were tested; of these, 40 per cent reacted positively to the test. These 1,254 students were x-rayed and 30 per cent of the white reactors showed x-ray evidence of tuberculosis, mostly calcification either of the lungs or hilum or both. Sixty-three per cent of the colored students showed definite evidence of infection; about twice as high a percentage. Thirty cases of tuberculosis were disclosed by this method —just under one per cent (0.9 per cent).

This year we have tested 2,128 students, of whom 35 per cent of the white students reacted positively and 50 per cent of the colored.

SUMMARY

We believe that this campaign of tuberculin testing, although it discloses actually few active open cases of tuberculosis, is of great value. It finds these persons with tuberculosis early and removes them from contact with other boys and girls and gets them under treatment when they can be easily cured. Perhaps its greatest value is in educating the students and parents to the importance of tuberculosis in the community and in bringing home to them the realization that this disease is a common infection, which is extremely prevalent. These high school boys and girls must be protected and their health guarded in order that the next generation shall see a greater decline of tuberculosis in their community and all over the country.

THE ROENTGEN RAY IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

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It is unnecessary, I am sure, for me to expatiate upon the importance of the roentgen ray in the early diagnosis of pulmonary tuberculosis. We are all in agreement in regard to its helpfulness in the early diagnosis of this condition. However, I am firmly convinced that its value could be enhanced tremendously if there were a closer cooperation between the clinician and the roentgenologist. It is my firm conviction that all suspected cases of early pulmonary tuberculosis should be thoroughly examined by the clinician and then referred to the roentgenologist for a roentgen ray study of their chests, and, upon the completion of this examination, a consultation should be held between the clinician and the roentgenologist for discussion of their respective findings. If this is done, I am sure the patient will be the recipient of great good.

Occasionally we hear the remark that there are differences of opinion among roentgenologists concerning a roentgenogram having certain shadows simulating early tuberculosis. Roentgenologists, at times, do disagree concerning a diagnosis, but, after all, they are not any different in this regard then the psychiatrists, internists, gynecologists, surgeons, and so on. The greatest discrepancy which occurs in the diagnosis of early pulmonary tuberculosis, from an x-ray standpoint, is the result of indiscriminate installation of x-ray apparatus by physicians who have not even had the time to learn what the normal chest looks like and do not know anything about the variations within the normal. Surprising as it may seem, almost immediately upon the installation of such apparatus, diagnoses are made of early pulmonary tuberculosis. I think that this is a very pernicious practice and certainly it is not

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helpful in the control of the disease, tuberculosis.

The shadows that are seen on the roentgenogram representing early pulmonary tuberculosis appear as distinct, circumscribed shadows which may be solitary or, as is more often the case, they occur as groups of smaller shadows. These shadows may vary in size, some as small as millet seeds, or they may be several centimeters in diameter. They may assume different shapes depending on associated inflammatory products of the tuberculous lesion. The cause of these shadows on the x-ray film is the result of the pathology of the disease. In the very early beginning of tuberculosis, before caseation has taken place, the lesion absorbs but a very small quantity of roentgen ray, and, as a consequence, there are found but faint shadows which lack the intensity which is observed when caseation has taken place. Accompanying these pathologic changes in the lung tissue in nearly all of the early cases of pulmonary tuberculosis, there is an inflammatory exudation in the alveoli around the lesion. This exudative material absorbs a certain amount of the x-ray and accounts for the indistinct outline and homogeneous shadows of some of the early lesions.

The question is often asked, "How small a tuberculous lesion may be visualized by means of roentgen ray?" Experimental work has demonstrated that a lesion as small as four millimeters in diameter, situated on the anterior surface of the lung, can be visualized by the roentgen ray. We are not particularly concerned, however, regarding how small a tuberculous lesion can be visualized, but what we do wish to know is, will the roentgen ray visualize a tuberculous lesion that is capable of producing clinical symptoms? I can answer that question by saying that we honestly believe that the roentgen ray, in almost all instances, will visualize a tuberculous lesion that is producing clinical symptoms. Of course, it must be appreciated that a very early microscopic lesion, which in all probability is not producing any clinical symptoms, is not susceptible to being visualized, since we have not as yet been able to attach a microscope to the end of an x-ray tube.

EARLY TUBERCULOUS LESIONS

Another question that is often asked, "Where do you most often find early tuberculosis by means of the x-ray?" Many years ago we were taught that early pulmonary tuberculosis was most often found in the extreme apices. Today, we know that is not so. The x-ray has demonstrated that the early lesions of pulmonary tuberculosis are more often found in the infraclavicular space, more often on the right side than on the left, more often in the first and second spaces, and more often posteriorly than anteriorly. We, however, see early pulmonary tuberculosis occurring in any part of a lung, but the most frequent site of very early pulmonary tuberculosis, from an x-ray standpoint, is in the first and second interspace, more on the right than on the left, and more often on the axillary than the medial half.

Now another question that is often asked, "Is the roentgen appearance of tuberculosis typical of this disease?" This can be answered yes and no. Any inflammatory deposit or even a neoplasm in the lung will cause a shadow very much like that of early tuberculosis. It is almost a cardinal rule that a small, roughly circumscribed, homogeneous shadow or group of shadows occurring in the infraclavicular space, is almost invariably tuberculosis. However, as mentioned before, inflammatory deposit or neoplasm may cast shadows in those locations that simulate early pulmonary tuberculosis, and, for this reason, the roentgenologist must have a fair knowledge of the roentgen pathology of these conditions, if he is to make an accurate diagnosis. For instance, occasionally a resolving pneumonia of an upper lobe may leave a residuum of infiltration, which in size and arrangement of its shadow may resemble on the x-ray film an early pulmonary tuberculous process. It is in such cases that the clinician may be most helpful, since in certain instances the clinical symptoms may be helpful, and on the other hand they may not. In such a case, the ultimate decision

may be made on a subsequent examination after complete resolution, which will occasion a delay of a few weeks. An early, solitary, new-growth metastasis occurring in the infraclavicular space may closely resemble an early tuberculous lesion and vice versa. However, in such instances when we are in doubt, we have again the clinician to call upon to search for the primary growth. If successful, then the diagnosis is made. If the search is unfruitful, then we can wait a few weeks and another roentgenogram of the chest is made which will by that time show an increase in the size and number of the metastases.

SUMMARY

The small proliferative lesions of early tuberculosis, in my experience, bear close observation and should never be taken lightly. Ever so often there are patients referred for roentgenographic examinations of the chest, when an early pulmonary tuberculosis is found, and the referring physician informs the patient that there is little to worry about since the lesion is small. It is true that in the majority of such instances the prognosis is good, if the patient is under the care of one who understands how to treat tuberculosis, but we must remember that such a small lesion may cause a widespread, disseminated pulmonary tuberculosis in a few days or week.

THE VALUE OF EARLY DIAGNOSIS IN PULMONARY TUBERCULOSIS

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In 1935 the death rate of tuberculosis in sanatoria throughout this country was 24 per cent. This figure refers only to deaths within the institutions. Practically none of the patients discharged from them are cured in the true sense of the word, and a large percentage die of their disease within a few years. In 1931 a follow-up study by Waring showed that of 2,651 patients with tuberculosis, only 50 per cent were alive after five years, only 25 per cent after 10 years, and only 15 per cent after 15 years. It is probable that if a similar survey were made a few years from this present time, it might reveal a lower mortality, because only recently has collapse therapy, which has frequently proved curative in otherwise hopeless cases, been used on a large scale. The facilities for the adequate treatment of patients with tuberculosis are also increasing rapidly, and this increase will undoubtedly effect a further reduction in the mortality of the disease.

The fact remains, however, in spite of the potential favorable factors mentioned, that a large percentage of patients with tuberculosis have incurable disease when they are first seen or when the diagnosis is made. Under the circumstances, it is no exaggeration to say that even with the best of therapy perhaps 50 per cent of all patients with tuberculosis are likely to die within 15 years after they contract the disease. Yet the fact that tuberculosis carries a very high mortality is often overlooked. This happens because the disease is chronic in most cases, and as a result the average practicing physician follows a relatively small number of patients from the time of diagnosis to death or recovery.

CAUSE OF HIGH MORTALITY

The principal factor responsible for the high mortality of tuberculosis is delay in diagnosis until the disease has progressed beyond the early or minimal stage. In sanatoria throughout the country only about 13 per cent of the patients have minimal disease on admission. Of the patients admitted to the tuberculosis division of Charity Hospital of Louisiana at New Orleans less than 3 per cent have minimal disease. The incidence of minimal disease is probably considerably higher among admissions to the general medical wards, for many patients with minimal tuberculosis are not transferred to the tuberculosis division, but are sent home to "rest." To

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my mind, this is a grave mistake. I should much prefer to have hopeless, far advanced patients sent home to rest and have the patients with minimal disease, who have every chance of complete recovery under proper treatment, do their resting in an institution, where their progress for better or for worse can be closely supervised.

Delay in diagnosis is due only in small part to the inability of physicians to recognize tuberculosis in patients who have symptoms due to the disease. It is largely due to the fact that during the minimal stage symptoms are trifling or are entirely absent, and the patient therefore does not visit the physician until the disease is far advanced. The diagnosis of minimal tuberculosis, as another essayist of the evening has explained, is largely a matter of examining contacts and identifying cases among apparently healthy adults and adolescents. Programs of this sort result in the recognition of about 70 per cent of the cases of tuberculosis in the minimal stage.

Other factors contributing to the high mortality of tuberculosis are the inherent seriousness of the disease, plus the fact that many patients receive inadequate or improper treatment. Inadequate treatment may be due to several causes: The limited facilities for caring for patients with tuberculosis; lack of knowledge on the part of the profession as to modern methods of treatment; and the unwillingness of many patients to traverse the long and tedious road which leads to complete recovery.

IMPORTANCE OF EARLY DIAGNOSIS

The point which I wish to stress tonight is the importance of recognizing tuberculosis while the disease is still minimal, that is, before large areas of lung tissue are involved and before cavities detectable as such by x-ray have developed. The reasons why early diagnosis is important may be listed as follows:

1. The response to treatment is much more favorable when therapy is begun early in the course of the disease. The difference in response according to the stage of the disease is well illustrated in a recent report by Leslie and Anderson, from the Michigan State Tuberculosis Hospital. At the time of discharge, the disease was arrested or apparently arrested in 90 per cent of the minimal cases, as compared with 79 per cent of the moderately advanced cases and 50 per cent of the far advanced cases. The hospital mortality was zero for the minimal cases, 2.3 per cent for the moderately advanced cases, and 25 per cent for the far advanced cases. The difference in response to treatment is even more marked in other institutions which carry on less intensive programs of collapse therapy in moderately and far advanced cases.

2. Treatment is much less formidable in early than in more advanced cases. The majority of patients with minimal tuberculosis will recover without collapse therapy of any sort, and, if such therapy should

CONDITION ON DISCHARGE OF 832 PATIENTS WITH PULMONARY TUBERCULOSIS
(Leslie and Anderson, 1937)

All Cases	Arrested, apparently arrested, or quiescent	Improved	Unimproved	Died	Sputum negative	Sputum positive
Minimal (9.3%)	95%	0%	5%	....	100%	0%
Moderately advanced (32.5%)	93%	2%	3%	2%	91%	9%
Far advanced (52.8%)	58%	6%	11%	25%	68%	32%
CONDITION ON DISCHARGE OF PATIENTS IN ALL SANATORIA THROUGHOUT UNITED STATES, 1935	29%	30%	17%	24%		

be necessary, the relatively safe procedures of pneumothorax and crushing of the phrenic nerve will nearly always suffice. Collapse therapy, however, is needed in nearly all cases of moderately and far advanced disease, and often such patients are too hopelessly ill for any sort of therapy. The procedures which must be used, such as bilateral pneumothorax, thoracoplasty, and extrapleural pneumolysis, are more dangerous in themselves, and the patients who need them are in poorer shape to withstand them. The complications of pneumothorax therapy also increase according to the stage of the disease at which the procedure is instituted.

3. The incidence of extrapulmonary complications, such as laryngeal and tracheobronchial tuberculosis, tuberculous enteritis, and metastatic tuberculous lesions, increases as the stage of the pulmonary lesion advances. These complications greatly add to the problems of therapy and may retard or actually prevent recovery.

4. The great majority of patients with minimal tuberculosis are not great menaces to society, since they cough and spit very little if at all, and therefore disseminate relatively small numbers of tubercle bacilli. On the other hand, most patients whose disease has reached more advanced stages cough and spit a great deal. As a result, before they are admitted to institutions, and even after they are discharged, they may infect many other persons.

5. Practically all patients with minimal disease who enter tuberculosis sanatoria are discharged with negative sputum, but many patients with more advanced disease are necessarily discharged with positive sputum. In the report by Leslie and Anderson, which has already been quoted, all the patients with minimal disease, 90 per cent of the patients with moderately advanced disease, and 70 per cent of the patients with far advanced disease were discharged with negative sputum. This is an unusually high percentage. A far lower proportion of patients with moderate and far advanced disease are discharged from the tuberculosis unit of Charity Hospital with negative sputum.

6. The period of hospitalization, invalidism, and active treatment is much shorter for patients with minimal disease than for patients with more advanced disease. This statement, which is a corollary of the preceding statements, needs no explanation.

It is apparent that early diagnosis in tuberculosis is of definite value to the patient and to the health and financial weal of the public. Having, I hope, proved that point, I shall illustrate it by describing the favorable courses of four patients in whom tuberculosis in the minimal stage was recognized. As a matter of fact, they are the only patients with minimal tuberculosis whom I have under observation at the present time except one who is still in the hospital. I have seen and followed many patients with advanced disease, and have seen many of them suffer and die, but, like other physicians, my observations of patients with minimal disease have been regrettably few. I cite these cases not because they add anything to the proof of the point I have tried to make, but because their progress seems to represent the average course of patients with minimal tuberculosis who have received adequate treatment.

CASE REPORT NO. 1

In the fall of 1935 I was called to see a white man, 21 years of age, who had been in bed for two weeks with an upper respiratory infection. He had had a chronic cough for two years and had lost some weight, but had not previously consulted a physician. The chief symptom when I was called to see him was severe headache. He had physical signs of advanced tuberculosis in the right upper lobe, a stiff neck and a positive Kernig's sign. Within a week he was dead of tuberculous meningitis.

His brother, 19 years of age, was apparently in good health, although thin. A von Pirquet test, however, was positive, and an x-ray of the chest showed minimal tuberculosis at both apices. The process was active, as was evidenced by the fact that he had an afternoon rise of temperature to 99.5° F. every day over a two-week period. On a regimen of rest his lesions rapidly regressed. He was able to return to work in six months, and has remained well over a three and a half year period, during which x-rays at three month intervals have revealed no evidence of tuberculosis.

CASE REPORT NO. 2

A white girl, 16 years of age, was admitted to Charity Hospital in the spring of 1935, with hemoptysis, following a three month period of ill health with cough and loss of weight. She had far advanced tuberculosis, with a large cavity in the right upper lobe and a small lesion in the left hilar region. She received artificial pneumothorax, and for a year did well. Then she developed a cavity in the left lung, and bilateral collapse therapy was necessary. After many vicissitudes, and alternating periods of improvement and relapse, she died in April, 1939.

During a check of the family, it was discovered that the patient's sister, a school teacher, 29 years of age, had minimal tuberculosis in the left upper lobe. Although she did not believe that she was ill, she admitted that she had a slight cough, and it was found that she had afternoon fever. After two months' rest in bed, during which time the lesion showed no tendency to regress, pneumothorax was induced and was continued for two years without complications. The lung, on reexpansion, showed only a scar at the site of the former active lesion. This patient has remained in good health, and has lost only one semester from her school work.

CASE REPORT NO. 3

A white woman, 21 years of age, was admitted to Charity Hospital in the spring of 1935, with minimal tuberculosis involving both upper lobes. She had consulted her physician because she did not regain her strength after childbirth, and the physician had suspected tuberculosis because of afternoon fever, loss of weight, and a slight cough. On a rest regimen her lesion regressed rapidly, and within six months no x-ray evidence of tuberculosis remained. She was kept in the tuberculosis unit of Charity Hospital for 15 months, and has led a life of restricted activity since her discharge. An x-ray examination in March, 1939, showed no evidence of pulmonary pathology.

CASE REPORT NO. 4

A white woman, 26 years of age, was admitted to Charity Hospital in the spring of 1938. The night before admission, while on a drinking bout, she had spit blood. An x-ray revealed minimal tuberculosis in the right upper lobe. The patient had led a life in which dissipation had played a prominent role, and in the ward she was uncooperative and unruly. Because it was felt that she could not be depended upon to cooperate in a prolonged regime of rest and restricted activity, pneumothorax was induced, and as soon as satisfactory collapse was obtained the patient was discharged for the sake of peace in the ward. Since her discharge she has shown surprising cooperation in returning for pneumothorax refills, although I cannot vouch for her scrupulousness in carrying out instructions as to rest and diet. She remains in apparent good health, however, has no fever or cough, and her x-rays show good collapse of the right lung, with no evidence of disease of the left lung.

SUMMARY

The importance of the early diagnosis of tuberculosis is emphasized by means of statistical data and illustrative cases. It is pointed out that the chances of recovery are enhanced, the treatment is less arduous and formidable, the menace to the public is diminished, and the expense to the patient and to the community is lessened when tuberculosis is recognized while it is still in the minimal stage.

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DISCUSSION

Dr. W. H. Perkins (New Orleans): It is rather difficult to add anything of importance to these papers, but, there are two or three points I would like to emphasize.

The term minimal has been mentioned frequently and I think we are sometimes in danger of thinking too strictly in terms of clinically minimal. I have become accustomed to think of two types of minimal; that which we recognize clinically with certain findings, x-ray or otherwise, and the other which is pathologically minimal. The pathology is strictly only minimal before the onset of the allergic reaction. As long as the process of sensitization is present we can appreciate the fact that, by the time the patient has reached the clinical minimal stage, he is far advanced in pathology. It is this period of minimal pathology that should concern us.

I am not quite convinced at all that we should give up the idea of looking for tuberculosis in young children, even in the mass studies. I am of the opinion because of the still unknown factors in the natural history of tuberculosis. Although there is a certain period which we speak of as the "safe period", from five to thirteen years of age, there are unknown factors as to why we have the retrogression, or new infection stage near the onset of puberty. For that reason, I think every

physician should adopt a "must" attitude in tuberculosis in every patient; particularly pediatricians and others seeing infants, young toddlers of preschool age and children of every school age. He should at least rule out tuberculous processes in the early minimal pathologic stage before he admits that there is no hazard to the child. There is only one way in which that can be done. We cannot diagnose definitely through means other than a thorough history, tuberculin testing and x-ray. For this reason I feel that every child should be investigated with the idea of ruling tuberculosis out of the picture. We do it with venereal disease and should do it with tuberculosis. By giving tuberculin tests we can say this child has or has not touberculous infection. To get the actual picture of what is going on we must then be able to visualize it and this is accomplished only by x-ray.

We were shown 20 years ago how to give pneumothorax but only in recent years has it come to be generally used. In other words, we are lagging terribly in our application of knowledge and do not emphasize these points. I am primarily interested in tuberculosis as a disease and have become accustomed to thinking more in terms of where the patient got it than of the person who has it. For this reason it is important to find out which infants and young children have it and which do not. If they have it, they have gotten it close at hand. We should pick up the contact cases by tuberculin tests, and the follow-up with x-ray. The importance of the history must be recognized for in it the environment of the child stands out as the highest point. Knowing the source of the contacts we must then go after them for there is no use taking care of the child who has the infection unless we reduce the probabilities of that child getting further dosages from that same source.

Dr. Sydney Jacobs (New Orleans): The philosophy of the early diagnosis campaign is that the sooner tuberculosis is diagnosed, whether in the child or adult, the quicker, the easier, the more cheaply and more safely can that tuberculosis be arrested. It is still unfortunately true that at least eight out of every ten people who come to institutions have moderately advanced tuberculosis. Despite all propaganda that has been carried on for the past quarter of a century and more, the majority of people who report to physicians for examination do so only when the symptoms are impressive. The only logical conclusion to draw from this is that we must go after tuberculosis where the people who have it do not suspect that it exists. Such a campaign has been presented to you.

Dr. Wilson has shown quite clearly how this can be done in the public school system and how it is done in groups which can be easily obtained for the purpose of study. Such groups are children in school, high school students, the students in colleges and in medical schools. This can also be conducted in C. C. C. camps and in other institutions where large groups of people are available for examination.

Dr. Menville has presented to you the diagnosis of tuberculosis as it may be made with the aid of the x-ray. It is unfortunately true that there are many practitioners who do not suspect tuberculosis when they should. Such diagnoses can be made only by properly studied x-rays in conjunction with clinical data.

Dr. Hull spoke of the value of the early diagnosis campaign and has clearly presented to you the fact that if we diagnose tuberculosis early and if we treat it early, we can cause arrest of the disease at a time when there will be most benefit. The only thing for us to do is suspect tuberculosis in every patient who has any symptoms of any sort at all until those symptoms are definitely linked with a given pathologic process. If we wait to make the diagnosis of tuberculosis until there is cough and expectoration in great amount, and fever, I fear we will not be able to diagnose many minimal lesions; such a clinical picture shows far advanced tuberculosis. The only way to make an early diagnosis, that is of "treatable" disease, is by a regimented effort. To do this is the object of the early diagnosis campaign.

Dr. I. L. Robbins (New Orleans): At the risk of being considered somewhat repetitious I feel that for those of us who have been interested in tuberculosis for a long time this symposium is of such great importance that it is worthy of our earnest consideration and calls for some added remarks.

I was impressed by what Dr. Menville said about the physician attempting to interpret x-ray pictures. I agree with him, that even in the best hands the roentgenogram presents difficulties in the diagnosis of minimal or incipient tuberculosis. It would be quite presumptuous for those, not experienced, to attempt to diagnose these cases. Nevertheless I am afraid that clinicians are erring on the other side equally as far. Only too often we accept the x-ray reports of the roentgenologist without taking the trouble to ask for the plate and attempt for ourselves to determine the extent of the damage existing in the lung. The result of this is, that as the months go by a series of x-ray studies are made and we have a very vague and indefinite idea concerning the improvement, retrogression or progression of the case. As Dr. Menville said, there must be team work on the part of the x-ray man and clinician if we are not to diagnose improperly and note the progress of these cases. Certainly we should not merely take reports of the x-ray plates from the roentgenologist and hope to treat intelligently the patients and determine whether they are improving or not.

All of us know that if we take the trouble to

look at a urinary sediment, for example, even though we are not adept in describing the preformed bodies found in the sediment, nevertheless we know that as we look at it from time to time we derive a certain amount of information that the best laboratory cannot give to us. Not that we are able to determine all details expertly but we can definitely see some change no one has the power to describe adequately by words; especially if the first picture is called to our attention and if we cooperate. I think then we should also insist that the clinician should make a definite effort to get the x-ray plates and bring them to the wards or the office in order to study them and arrive at an intelligent appraisal of the status quo of the patient's condition.

Another thing that has to be stressed to a great degree is the fact that we must insist that the clinician should study the x-ray plates in order to see the very small insignificant lesions of incipient or minimal tuberculosis. If clinicians will learn to know that these small, insignificant looking, vague, hazy shadows are the forerunners of serious devastating disease in months and years to come, they will awaken to the fact that they must first of all get more x-ray pictures, place greater reliance upon them and insist that when they get them to study them and learn to appreciate the infinitesimal changes that are to be found on the x-ray plates.

Finally, the clinician must constantly insist to himself that the day has come when no matter how healthy the individual seems to be, such an individual can definitely have active pulmonary tuberculosis. Robustness and the so-called "picture of health" no longer should be accepted at its face value since we know that for many years pulmonary tuberculosis can pursue an active course and still be entirely asymptomatic. It is true that the purpose of the physician is to find the disease and educate the patient and the public to the dangers of pulmonary tuberculosis but he has another duty to perform and that is to inform himself and constantly urge himself, even when he feels most skeptical, particularly in the face of good health and very vague and hazy shadows, that here is a patient who has the makings of a case of clinical pulmonary tuberculosis in the years to come unless he deliberately takes the situation in hand and demands of this patient such care and consideration of his future as he would if he found tubercle bacillus and signs of activity in the x-ray plates.

Dr. J. L. Wilson (In conclusion): I think that the points brought out by Dr. Menville and Dr. Hull all indicate one thing for the future; that we are going to have to do as Dr. Myers of Minnesota suggested, consider every young individual with positive tuberculin as a potential case of tuberculosis. At present this sounds rather extreme, but the incidence of the reaction to tuberculin is diminishing steadily. The time will come when positive tuberculin will be no more common than positive Wassermann at present. Then we shall have to look on infected individuals as potential cases of tuberculosis, to keep under medical supervision, if not under active treatment. The medical profession will have to back measures to find these positive reactors. All such measures, whether mass surveys or surveys by doctors in their own offices, will lead to the care of these individuals by the doctor and eventually to prevention and treatment in the early stages, preclinical stages, of pulmonary tuberculosis.

THE MORTALITY OF THYROID DISEASE IN A NON-ENDEMIC AREA*

AN ANALYSIS OF 103 CONSECUTIVE DEATHS, WITH A SPECIAL NOTE ON THE LIVER FACTOR

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NEW ORLEANS

Over the ten and a half year period ending July 1, 1937, 817 patients with thyroid disease have been operated on at Charity Hospital of Louisiana at New Orleans with 44 deaths, a mortality of 5.4 per cent (Table 1). It seems scarcely necessary to point out that this is a very high mortality. Moreover, the contention that it does not represent the true situation in this community cannot be substantiated.

TABLE 1

INCIDENCE AND MORTALITY OF SURGICAL THYROID DISEASE AT CHARITY HOSPITAL IN NEW ORLEANS

January 1, 1927-July 1, 1937

	Cases	Deaths	Percentage
Total cases	817	44	5.40
Non-toxic	464	11	2.37
Toxic	353	33	9.35
White	414	16	3.86
Negro	403	28	6.94
Male	93	14	15.0
Female	724	30	4.16

Dr. J. M. Batchelor, Superintendent of Public Health in New Orleans, has very kindly supplied me with the local statistics

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for the period covered by this study, and a comparison of the New Orleans death rate with the national death rate supplies interesting if discouraging reading (Table 2).

TABLE 2
DEATH RATES OF THYROID DISEASE PER 100,000 POPULATION

	1933	1934	1935	1936	1937	1938
Toxic						
United States	2.7	2.8	2.8	3.0	2.9	
New Orleans	2.874	3.030	4.780	3.732	2.519	4.206
Non-Toxic						
United States	0.2	0.2	0.2	0.2	0.2	
New Orleans	1.232	0.404	1.593	1.571	1.162	1.338

From 1933 through 1937 the death rate for toxic thyroid disease in this community was considerably higher in most years than the national rate. It was also very high in 1938, for which year the national figures are not immediately available, and if the trend apparent for the first three months of the current year continues, statisticians estimate that it will be equally high for 1939. The figures for non-toxic disease are even more amazing. In not a single one of the years under discussion does the national death rate even approximate the local death rate.

Dr. Batchelor has also supplied me with certain details of the 284 thyroid deaths which occurred in New Orleans from January 1, 1927, through March 1, 1939, and I have for comparison with them the 103 deaths (surgical and non-surgical) which occurred at Charity Hospital during that same period (Table 3). It is surprising to

TABLE 3
COMPARISON OF THYROID DEATHS IN CHARITY HOSPITAL AND IN NEW ORLEANS
January 1, 1927-March 15, 1939

	Charity Hospital	New Orleans
Total deaths	103	284
Toxic	89	219
Non-toxic	14	65
White	36	193
Negro	67	91
Male	27	46
Female	76	238

find that during this time not even half of the thyroid deaths in the city occurred at the large public hospital where, for various reasons, one might not unreasonably expect to find most of them. Evidently other hospitals, for which I do not have the figures, are providing their full share of the local mortality, aside from the deaths which undoubtedly are occurring outside of hospitals. Regardless of where the deaths occur, however, and whether they follow surgery or do not, they are thyroid deaths, and as such go to make up the thyroid mortality of this community.

LACK OF OPPORTUNITY TO STUDY THE DISEASE THE CHIEF CAUSE OF THE THYROID MORTALITY IN A NON-ENDEMIC AREA

No one with any knowledge of thyroid disease will be surprised that the death rate here is higher than it is in such cities, let us say, as Boston or Cleveland or St. Louis, though he may be surprised that it is so much higher. It is true that public health surveys have shown that the incidence of goiter in certain scattered portions of Louisiana is as high as it is anywhere in the world, but for all practical purposes this is a non-endemic area, and in that fact lies the chief though by no means the only reason for our excessive mortality.

The mortality for thyroid disease in Charity Hospital, and I have no doubt that the same reason holds for other hospitals in the city, is high because no surgeon and no internist can see enough of the disease to become really familiar with it. The almost fractional mortality reported from such centers as the Crile Clinic or the Lahey Clinic or the Mayo Clinic, and by such individual surgeons as DeCourcy, Richter, the Bartletts, Heyd and others, is being achieved in very large groups of cases by men who see thyroid disease as part of their daily practice. Equally important, their assistants and anesthetists and nurses also see it daily.

That is not the situation here. Sixty-five surgeons operated on the 817 patients handled during the ten and a half year period under discussion at Charity Hospital, and a great many of them had their losses. The largest number of operations performed by any one surgeon, incidentally without a death, was 88. Another surgeon performed 61 operations. But at the other end of the list are 14 surgeons with one case apiece, and six others with two cases apiece. One cannot learn a great deal about thyroid disease even from 88 cases, nor does a zero

mortality in that number of cases prove anything at all about the general death rate of the community. The important consideration is that we are undoubtedly losing patients because we do not see enough of them to become familiar with a treacherous and insidious disease which internists and surgeons fear even when they are widely experienced in it. They fear it, for that matter, because they are experienced.

Because of the limited time at my disposal, I shall confine my discussion of thyroid disease to four special points: the negro mortality, the non-surgical mortality, thyroid crisis, and the liver factor in thyroid disease. The other very interesting considerations inherent in this series of 103 deaths are being reported elsewhere.[1]

THYROID MORTALITY IN THE NEGRO

In previous communications,[2, 3] I am afraid without much elucidation of the question, we have commented upon the very high thyroid mortality in the negro. That trend is definitely continuing in the cases under discussion. As our figures show (Table 1) goiter shows approximately the same general incidence in the white and colored races. Toxic disease is less frequent in the negro (Table 4) though by no means unusual. It is, however, disproportionately infrequent in the negro male, in whom by any criteria the mortality is really shocking.

TABLE 4

DISTRIBUTION OF TOXIC THYROID DISEASE AT CHARITY HOSPITAL IN NEW ORLEANS

January 1, 1927-July 1, 1937

	Cases	Deaths	Percentage
Total	353	33	9.35
White	202	14	6.93
Negro	151	19	12.58
Male	38	8	20.53
Female	315	25	7.93
White male	23	3	13.04
Negro male	15	5	33.3
White female	179	11	6.14
Negro female	136	14	10.3

Why these disproportions should exist and should be increasing, as they seem to be, baffles explanation. The natural carelessness of the negro, and his tendency to ignore any disease in which pain is not an initial feature, may furnish a partial explanation. The disease may appear with greater intensity in hosts who have lost their native immunity. Perhaps the most reasonable explanation, as we shall point out in our discussion of the liver factor, is that the duration of the disease is longer in the negro than in the white patient. The catch in all of these explanations, however, is that they in no way explain the mortality in negro males, since they operate equally for both men and women.

Of the 103 consecutive deaths at Charity Hospital (Table 3) 89 were toxic and 14 non-toxic. The latter group I shall not discuss except to say that 10 of the 13 surgical deaths occurred soon after operation and were due to hemorrhage, shock, and respiratory depression. Most of the patients were not particularly good risks, though that fact does not seem to have accounted for most of the deaths. It is interesting, though I do not know that it is anything but a chance coincidence, that males, and particularly negro males, again furnish an undue proportion of the deaths.

NON-SURGICAL DEATHS

Of the 89 toxic deaths, 40 were surgical and 49 non-surgical, and 40 of the 49 non-surgical deaths were concentrated in the period beginning in 1934. Why this should be I do not know. I am impressed by the yearly distribution, however, because when we began to study thyroid disease in 1933,[4] there were so few medical deaths from it in Charity Hospital that we did not consider them worth investigating. That is no longer the situation there, and I am sorry that I do not know the situation for other hospitals in the city in this regard.

Some of the non-surgical deaths occurred in patients who were admitted very ill, in a few instances actually moribund. Some occurred in patients who refused surgery or who would not cooperate in treatment. The physical conditions prevalent at Charity Hospital during the last two and a half years have certainly contributed to some of these deaths, although they contributed equally to some of the surgical deaths. The noise and confusion incident to the demolition of the old hospital and

the construction of the new building, and the overcrowding of the negro wards in particular, have not provided a propitious environment for the care of toxic thyroid subjects.

With due regard for all of these reasons, on the other hand, the conclusion is inescapable that most of these patients died because they had permitted their disease to continue too long or because they had been treated medically over too long a period of time. Some of them had been in and out of the hospital for as long as ten years. Some of them had been in the hospital for three months or more when death finally occurred. Some of them were being prepared for surgery, it is true, but most of them were being treated medically, or, to judge from the records, were being submitted to no systematic plan of treatment.

THYROID CRISIS

That 33 of the 49 non-surgical deaths were due to crisis, as compared with 23 of the 40 surgical deaths, is undoubtedly significant. Many of the surgical deaths from crisis occurred in badly prepared patients, who were operated on at the wrong time. One or two patients died of crisis on the surgical wards as they were being prepared for operation. Most of the non-surgical deaths from crisis occurred on the medical wards, in patients for whom surgery does not seem to have been contemplated, and in that fact lies the warning of these fatalities.

Toxic thyroid patients literally stand in jeopardy every hour. They do not tolerate the mere act of living. They react badly to the psychic trauma of life, and to its inevitable emotional disturbances. The most trivial intercurrent illness or accident, as case after case in this group proves, is enough to destroy their delicate balance and to throw them into crises which may readily prove fatal. If such patients are to be treated medically over long periods of time, every endeavor should be made to protect them against life. In particular, as several cases prove, non-thyroid surgery should never be done on them; the fact that such illnesses and accidents may occur and such surgery may become necessary at any time in any of these patients would seem to be an additional reason for submitting them to thyroidectomy without delay.

The fact that 68 per cent of the crises occurred in the six-months period from May through October, I do not think significant. We are acclimated to heat and humidity here, and are not affected by them as are patients in colder climates. Wilensky[5] has just pointed that out. Furthermore, the admissions to Charity Hospital, particularly the negro admissions, are always heavier in the summer months than during the winter months, as many a member of the teaching staffs of our two schools has had reason to lament, and naturally more patients will die at a time when more patients are in the hospital. Examination of the individual records will show that in a large number of cases improper management or sheer neglect is a better explanation for the crisis than is hot weather.

ESTIMATE OF TOXICITY

The whole discussion really simmers down to the fact that in perhaps the largest proportion of these non-surgical deaths, just as in a great many surgical deaths, the toxicity of the individual patient was either not realized at all or was under-estimated. Diarrhea, vomiting, or both, enormous weight losses, progressive exophthalmos, jaundice, psychoses, emotional instability, failure to respond to adequate lugolization, increases in the basal metabolic rate under proper treatment, these and similar findings should have left no doubt in many cases of the seriousness of the disease under observation. A realization of the intensity of the toxicity, in turn, should have been followed by more intensive measures to control it before it passed beyond control. At least one case in the series, too, proves the risk of operation by a surgeon who sees the patient for the first time after she is prepared for operation and who therefore has no conception of her initial toxicity.

THE RISKS OF LONG-CONTINUED TOXICITY

If one accepts Hertzler's[6] conception of all thyroid disease as one continuous disease process, and his further contention that

even a non-toxic goiter is never truly innocent, the long duration of many of the goiters in this group of deaths is very significant. If one accepts this theory of thyroid disease, one must arrive at the conclusion that many of the patients in this series had been suffering from latent if not active toxicity for very long periods of time. The remedy for the situation seems equally clear, the surgical removal of the goiter preferably before it becomes toxic, certainly immediately after toxic manifestations have made their appearance.

Long-continued toxicity is known to give rise to visceral changes, chief of which are cardiac disease and liver damage. The cardiac aspects of the question time does not permit me to discuss, except to point out the soundness of Hertzler's observation that all thyroid patients who are not operated on and who live long enough will eventually die cardiac deaths. Lahey's[7] excellent surgical results in thyrocardiac subjects supply the clearcut remedy for this particular phase of the thyroid mortality.

THE LIVER FACTOR IN THYROID DISEASE

The evidence which now exists as to the importance of the liver factor in toxic thyroid disease, and particularly in thyroid crisis, makes extended proof unnecessary here. Surprisingly little attention is paid to it, however, by physicians in general, and in many of the important texts it is almost overlooked. My own idea is that the many clinical, pathologic and experimental studies[8-11] which have been made of it all go to prove the urgent necessity of operating on thyroid patients before their visceral state becomes irreversible.

In 23 of these 103 fatal cases postmortem examination was made. Microscopic study of the liver tissue was omitted in two instances, and in three of the remaining 21 cases there was no gross or microscopic evidence of abnormality. But in the other 18 cases the pathologic changes included cirrhosis and toxic hepatitis in one case each; congestive changes and degenerative changes in two cases each; and fatty infiltrative changes in 12 cases. Other investigators have pointed out that there is no standard pattern of pathologic changes[8] in these cases, but most reports show, as does this one, that fatty infiltration of the liver is the most common finding.

Our findings in our studies of thyroid patients by the Quick liver function test bear out these postmortem findings. It was used in 11 of the 103 fatal cases (Table 5),

TABLE 5

VALUES (IN PERCENTAGES OF NORMAL) FOR INITIAL QUICK TEST OF LIVER FUNCTION IN 11 FATAL CASES

Case	Value	Cause of Death
1	92.6	Tuberculous meningitis
2*	81.3	Crisis
3**	75.6	Postoperative storm
4	71.5	Decompression for progressive exophthalmos, following two lobectomies
5	70.5	Cardiac, after lobectomy and later amputation of leg for embolism
6	65.0	Probably respiratory, postoperative; cause not clear
7	46.5	Crisis
8	40.6	Cardiac, postoperative
9	35.5	Postoperative storm
10	32.8	Crisis
11	29.7	Crisis

*After liberal use of glucose.
**After lugolization.

in only one of which the admission values were approximately normal. In only two of the other 10 cases did the patients respond adequately to preparation; in the remaining eight cases they did not respond, or the therapy itself was inadequate. Whatever the reason, the fatal results could easily have been anticipated.

Our collected average values (Table 6),

TABLE 6

AVERAGE ADMISSION VALUES FOR QUICK TEST (IN PERCENTAGES OF NORMAL) IN THYROID DISEASE

Diffuse	83.2
Diffuse toxic	57.4
Nodular	77.7
Nodular toxic	55.6
Control	100.0

57.4 and 55.6 per cent of normal for toxic diffuse and toxic nodular disease, leave no doubt of the hepatic damage which the toxic state induces. Such damage cannot be ignored with safety. Our studies, which are corroborated by those made at the Lahey Clinic with this test, all prove the marked drop which occurs in liver function after thyroid surgery, as well as after any other variety. A properly prepared patient has a less sharp drop, and, if postoperative

therapy is adequate, is further bolstered against it until the effect of the anesthesia and the operative trauma has passed. A patient who has a low admission value, and who is improperly prepared for operation or does not respond to therapy, has no such protection, and a critical if not a fatal state is likely to ensue promptly. The liver factor plays quite as important a part in spontaneous crisis as in postoperative thyroid storm.

I might say, in stating my personal satisfaction with the Quick test in thyroid disease, that I was gratified to hear Dr. R. B. Cattell[12] on his recent visit to New Orleans say that it was being used with equal satisfaction at the Lahey Clinic.[13] When the test is used serially, it indicates with a high degree of accuracy the condition of the thyroid patients when they are first seen, and their response to therapy. In combination with other observations, chiefly clinical, it also indicates the optimum time for operation, and the amount of surgery which can safely be done.

In a previous communication[3] we have called attention to the marked discrepancies in the initial values of this test in negro and white patients (Table 7). Only in

TABLE 7

AVERAGE VALUES FOR QUICK HIPPURIC ACID TEST IN THYROID DISEASE

By Racial Distribution

Type	White	Negro
Diffuse	91.0	77.5
Toxic diffuse	55.6	59.0
Nodular	81.0	78.1
Toxic nodular	64.7	54.6

toxic diffuse disease is the average value higher in the negro than in the white patient. The duration of the toxicity, latent or active, over a longer period of time perhaps furnishes the explanation of this finding in the negro subjects. If that be true, the lowered values for hepatic function may very possibly help to explain the higher negro mortality in toxic thyroid disease, though again it throws no light on the mortality in negro males.

LOWERING THE MORTALITY IN THYROID DISEASE

These rather rambling remarks lead very definitely to one conclusion, that the reduction of the mortality in thyroid disease must be brought about, first of all, by a reduction in the duration of the toxicity. This is most easily accomplished by an earlier resort to surgery. Eliminating the small group of patients who are doomed from the beginning, more intimate cooperation between the physician and surgeon in the management of thyroid disease would do more than any one other thing to lower its mortality. Such cooperation would bring about earlier diagnosis, a prompter resort to surgery, more careful preoperative preparation, a more accurate estimate of toxicity, and, finally, a safer amount of surgery. Undoubtedly, as a result, there would be a prompt and sharp drop in the mortality.

I have less hesitancy in presenting this paper because I myself contributed four of the fatalities on which it is based. Twenty-eight surgeons were responsible for the 53 surgical deaths, one for seven; four, like myself, for four each, and, at the other end, nineteen for one death each. I do not think these figures prove anything in particular except that none of us has had a very wide experience with thyroid disease.

That being the case, it might be a wise and profitable plan for us to pool our experience. I should like to see this Society undertake such a cooperative effort by the appointment of a standing committee, representing the various hospitals of this city, as well as the public health officials, and charged with the task of studying thyroid disease in this community and reporting upon it at intervals in open meetings or in our official publication. Such a continuing analysis would be a healthy thing for each of us individually, and would undoubtedly in a very short time be reflected in a distinct improvement in our mortality.

SUMMARY

1. The unusually high mortality of thyroid disease in a non-endemic area, as evidenced by the statistics from the New Orleans Charity Hospital, is chiefly due to the fact that no single physician can possibly have a very large experience with it.

2. The negro mortality, particularly the negro male mortality, is excessively high in New Orleans.

3. An unduly large proportion of patients in the toxic thyroid group die without surgery, chiefly, it would seem, because of unreasonably long trials of medical treatment and failure in many cases to realize the intensity of the toxicity.

4. Thyroid crisis is the most frequent cause of death in both the surgical and the non-surgical groups. Its occurrence is an ever-present possibility in toxic thyroid disease.

5. Prompt surgery would seem to be the most reasonable method of reducing the duration of toxicity, and thus reducing the mortality.

6. Liver damage is a very important but a largely overlooked factor in the thyroid mortality.

7. The Quick hippuric acid test is a simple and accurate method of estimating the hepatic state of the toxic thyroid patient, and of following the progress of therapy.

8. It is suggested that in a non-endemic area such as New Orleans, a continuing study of thyroid disease would be a valuable contribution to the reduction of the very high mortality.

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DISCUSSION

Dr. Allan Eustis (New Orleans): When Dr. Boyce asked me to open the discussion of his paper, from his title, I was at a loss to know what to say. However, after reading his paper, I thought it might be wise to speak a few words further on the dangers of liver dysfunction; as you know this has, for a great many years, been my hobby.

Some of the older members may remember a symposium we had in the old Elks' Building; a symposium on thyroid disease in which Bill Haggard of Nashville and Charles Mayo of Rochester took part. In the discussion I said I thought it well to consider intestinal toxins and liver in this condition. I never will forget Sam Clark said, "You had your nerve." I think we can not get away from that fact though. I mentioned two cases of hyperthyroidism with tachycardia. They were relieved and one is living today without any return of the disease, simply by treating associated intestinal toxemia.

I have a few slides I wish to show.

Dr. Boyce stated that eleven of his cases had the Quick liver function test performed on them. I think Ehrlich's aldehyde test is the most delicate test for liver function that we have at present. The test depends on getting bile into the intestinal canal where urobilin is reduced to urobilinogen. Part remains in the feces, but part is reabsorbed and goes back to the liver. However, when the liver is damaged instead of urobilinogen going back to bilirubin it is absorbed in the general circulation and occurs in the urine. The test is positive when a rose red color is obtained. Wallace and Diamond have devised a quantitative test. I see no reason for this. Anything less than plus 3 is not significant.

This slide shows an analysis of 500 patients of routine office cases, not thyroid but general office cases, on which the aldehyde test was performed. As it was positive in only 6 per cent of the cases you may say it has no value. On the contrary, however, in these thyroid cases, it is often a life saver.

The next slide shows the effect of indican on aldehyde reaction. This is a slide I made in 1938.

Here is a slide I made today which did not come out very well. This patient has a carcinoma of the pancreas and is in Touro now, and has painless jaundice of two months' standing. There was a negative aldehyde test when first seen. After she was operated on (cholecysto-jejunostomy), as soon

as bile got into the intestines, she promptly showed a positive aldehyde test and as the liver improved in function it came down to normal. This is an interesting case because it brings out the original idea of Bauer, that in order to have the test you must have the bile getting into the intestinal canal. This test has been used by me for years but it is only now beginning to be used generally. I do not know how many thousands of tests I have made.

Another point is in reference to preparing for operation. All thyroid patients do not utilize the same amount of iodine. I reported one case where it was shown that before we got any improvement so that Dr. Allen could operate, it was necessary to give 90 drops of Lugol's solution three times a day before we found metallic iodine in the urine. As soon as there was iodine in the urine he showed clinical improvement.

PERITENDINITIS CALCAREA*

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AND
MARSHALL MICHEL, M. D.†
NEW ORLEANS

Peritendinitis calcarea is a definite disease entity possessing a typical clinical picture and is characterized by areas of calcification in the soft tissues as ligaments, tendons, bursae, articular capsules and surrounding connective tissue. Although the literature on this entity is not great, nevertheless it has received considerable attention from the German and Scandinavian writers. Again, many vague and rare conditions as Pellegrini-Stieda syndrome, deQuervain's disease and commoner entities as bursitis calcarea are in all probability local manifestations of peritendinitis calcarea. This latter term was originally employed by Sandstrom[1] of Stockholm, Sweden in 1930 but as indicated above, the various local manifestations were discussed and partially described at an earlier date by Milian,[2] Schmidt,[3] Stieda,[4] Stegemann[5,6] and others; but these earlier clinicians, with the possible exception of Stegemann, did not realize that they were contending with a specific entity.

The disease produces a typical pathologic and roentgenologic picture but a variable clinical one. The etiology is not known, some cases appearing to be idiopathic while others are secondary to trauma. It is significant that in our series of 10 cases, the right side was always the one affected. No evidence of bacterial invasion has ever been found in cases of peritendinitis. Grossly, the pathologic specimens, at times, mimic gouty deposits, but no urates have ever been isolated from these lime deposits, the elements predominating being calcium carbonate and a mixture of calcium, phosphoric acid, and some protein-like substance. Tuberculosis and syphilis have been thought of as possible causative factors but minute investigation has never offered any basis for substantiation. The possibility of an acute rheumatic background is unlikely for many cases that occur in advanced years with only a single joint involved surely do not impress one as being a rheumatic syndrome. It is possible that embarrassed vascularization of tendons and peritendinous tissues in some individuals marks these people as being potential candidates for peritendinitis.

PATHOLOGY

The basic pathologic characteristic of the entity is the deposition of calcium in the soft tissues about joints as tendons, articular capsules and bursae. At this point it is important to note that the term, "calcareous bursitis", which some authors claim is a misnomer, is in many instances a manifestation of peritendinitis calcarea. Fault has been found with the term, "calcareous bursitis", because at operation the calcium deposits have been isolated in the soft parts about the bursa rather than in the bursa per se. Peritendinitis calcarea in the hip has been called calcareous bursits of the subtrochanteric bursa (see

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x-rays of case 1). Carnett and Case[7] operated on 50 patients with calcareous bursitis of the subdeltoid bursa and found

Fig. 1. Demonstration of the deposition of calcium about the trochanter of hip, a condition causing much pain.

such a picture as suggested above, namely calcium deposits situated beneath the bursa or under and in the supraspinatus tendon. Incidentally, it is of etiologic significance to note that in their cases, they did not see any evidence of recently torn fibers or blood clots in the supraspinatus tendon.

The incidence of peritendinitis is common; we have encountered 10 cases in Touro Infirmary during the past 12 months. Again, Sandstrom[1] has personally observed 329 cases since 1930. It is of interest to note that this condition may be one of the causes of sore arms in base-ball players.

JOINTS AFFECTED

Any joint may be involved, the local symptoms being similar in all cases. In our small series only three different joints, the shoulder, hip and wrist, were involved,

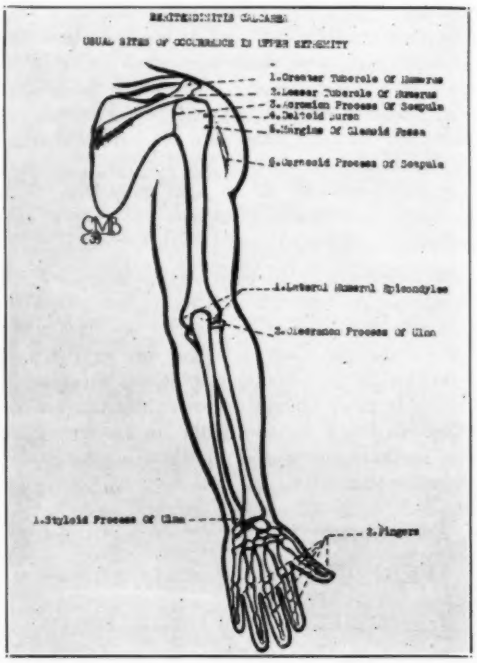

Fig. 2. Sites of predilection of peritendinitis calcarea in the upper extremity.

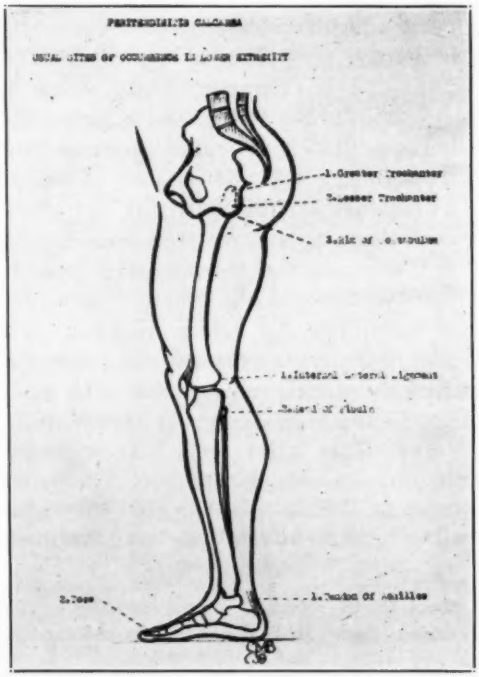

Fig. 3. Sites of predilection of peritendinitis calcarea in the lower extremity.

but Figures 2 and 3 show the many various sites. The shoulder is by far the most frequent locale, being about five times more common than is the hip, which is second in frequency. Calcification of the internal lateral ligament of the knee is known as Pellegrini-Stieda's disease and is a rare entity, only 54 cases having been reported in the American literature through 1933. One case in our series (see x-ray fig. 4)

Fig. 4. Case of Pellegrini-Stieda's disease. We think entity a type of peritendinitis calcarea.

is typical; the history and symptoms do not differ from those of other cases of peritendinitis calcarea and it is our impression that Pellegrini-Stieda's syndrome is merely a local type of peritendinitis.

The calcium deposits per se vary in their appearance, one or two large masses being present in some cases and in contrast the picture may present many small, hazy, indistinct granules. Macroscopically, the deposits consist of a gruel-like substance in fibrous tissue. Microscopically, the examination reveals an inflammatory or necrotic tissue with deposits of calcium carbonate or phosphate. The deposits do not mimic bony structures for trabeculation is absent.

The age incidence of peritendinitis varies greatly, the disease being encountered from the third through the sixth decades of life. The average age in our series was 32 years, but Sandstrom reports it as occurring later in life, usually the fifth and sixth decades. Sex does not appear to play any significant role in the incidence, both sexes being equally prone.

CLASSIFICATION

The most rational clinical classification of peritendinitis calcarea is as follows: (1) Acute; (2) chronic; (3) latent or dormant.

SIGNS AND SYMPTOMS

The signs and symptoms of the acute type are both local and systemic, the symptoms being pathognomonic of an acute inflammation. These are:

a. Pain: This is the predominant symptom and is the reason why most persons consult a physician. The pain can be most excruciating, one of our cases being tentatively diagnosed as an acute osteomyelitis until the x-ray revealed the true pathology. Opiates are frequently necessary to control this pain in hyperacute cases.

b. Loss of Function: Active and passive motion is restricted in most cases, the active being more so than the passive. Reflex muscle spasm in an effort physiologically to splint the affected area is the probable explanation of this phenomenon.

c. Tenderness: This varies in severity, depending upon the part involved; the more superficial the part, the more pronounced the tenderness. At times tenderness may be so exquisite, that the weight of the clothes causes pain.

d. Swelling: This is the most erratic of all the local manifestations, being totally absent in many cases.

Systematically one notes that fever is often present; however, its absence does not rule out peritendinitis. The sedimentation rate is usually more rapid, Sandstrom[1] reporting only five normals in 75 acute cases.

The commonest type of peritendinitis is the chronic form that undergoes an acute exacerbation. If treated properly the prognosis is just as good as that of the acute, namely excellent.

Those cases which are silent, that is, do

not cause any discomfort and are encountered during an x-ray examination for other pathology are termed dormant or latent.

DIFFERENTIAL DIAGNOSIS

Gout, osteomyelitis, arthritis, interstitial calcinosis, so-called bursitis, especially subdeltoid bursitis, fractures, traumatic myositis and senile proliferative processes arising from joint capsules are to be differentiated from peritendinitis calcarea. Despite these many conditions that simulate peritendinitis, there is one means of differentiation that is virtually specific and that is the x-ray. We do not wish to disregard the well deserved attributes of physical examination, but the final word rests with the x-ray and we frankly acknowledge this fact. The x-ray diagnostic technic varies in different cases for in some individuals if overexposure occurs, thin calcium deposits will be overlooked. Frequently, oblique views are necessary as a supplement to the orthodox anteroposterior and lateral studies.

TREATMENT

Treatment of this entity has afforded us much satisfaction inasmuch as we were able to afford patients quick relief and to all purposes a complete cure in the majority of cases. The only patient in our series operated upon was one who deserted immediately after a diagnosis was made, no opportunity for therapy being afforded us. The basis of therapy is deep x-ray, and it is virtually a specific therapy. Not every patient is afforded quick relief but often a single application is sufficient to relieve pain in 24 to 36 hours. No case in our series required over nine exposures, the average number being only four exposures. Our dramatic results with x-ray parallel those of Sandstrom in his huge series. The dosage of x-ray employed is relatively small, our dosage as advocated by Teitelbaum,[8] of Touro Infirmary, is as follows: Acute cases—150 r units twice a week; chronic cases—150 r units once a week. The technic employed is: 20 milliamperes, 200 kilovolts, 50 centimeters skin target distance (.5 cu. and 1 mm. aluminum filter).

The disappearance of the calcium deposits under x-ray therapy is not uncommon. We have noticed this phenomenon in several cases (see figs. 5 and 6).

Fig. 5. Hip shown in Figure 4 after exposure to deep x-ray therapy. Note the absence of calcium deposits formerly present. All symptoms have disappeared.

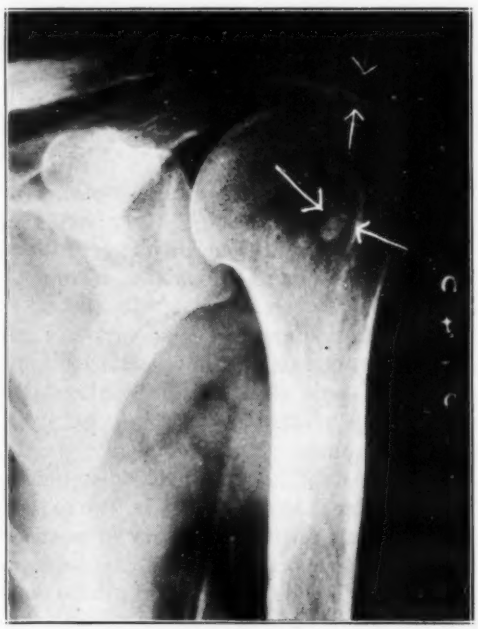

Fig. 6A. X-ray of shoulder revealing marked calcium deposits. Patient experienced great pain and loss of function.

Fig. 6B. X-ray of shoulder demonstrated in Figure 6A after deep x-ray therapy. Note that calcium deposits are markedly diminished. Function is now normal.

SUMMARY

Peritendinitis calcarea, a definite disease entity of unknown etiology, is relatively frequent. X-ray therapy is comparatively specific. Bursitis calcarea is most probably a manifestation of this disease. Various joints may be the site of the pathology and the age incidence is widespread.

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DISCUSSION

Dr. Michael DeBakey (New Orleans): Dr. Copland is to be commended upon his excellent but succinct presentation of a condition which is not infrequent. The subject has been thoroughly considered and I shall merely direct attention to an almost dramatic form of therapy which I first observed when I was a Foreign Assistant in Leriche's Clinic in Strasbourg. This therapeutic measure consists of procaine hydrochloride infiltration in the involved area. The technic of the procedure is relatively simple. The needle is inserted at the point of maximum tenderness and the surrounding tissues infiltrated with 10 c.c. of 1 per cent procaine hydrochloride solution. Within a few moments after the injection all pain and tenderness are completely relieved. The part can be moved with ease and not infrequently the relief is permanent. Occasionally it is necessary to repeat the injection. That the physiologic action of procaine hydrochloride should have a longer duration than its pharmacologic effect is rather difficult to conceive but it is a phenomenon which has been observed repeatedly. Leriche is of the opinion that this is due to the breaking of a vicious circle.

Dr. Sidney Copland (In conclusion): I have had experience with the method described by Dr. DeBakey. A man was carried into Touro, unable to walk. X-ray showed that this man did have peritendinitis of the subtrochanteric bursa. Novocain was used, in this instance 15 c.c. of a 1 per cent solution, and believe it or not, this man was not only able to support himself, but was able to walk out of the hospital immediately. However, he did have a recurrence of this pain, but was not reinjected. He was exposed to x-ray.

It is a remarkable thing that only a few years ago this was considered as an operative case, operative interference being necessary to remove these calcium deposits. We still find cases at times which will necessitate surgery, but conservative methods should be given these patients before operative interference is attempted. It does seem that x-ray is a panacea for many disorders; however, in this particular instance, we do feel that it is of great benefit to these patients.

SCHISTOSOMIASIS*

REPORT OF A CASE

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The purpose of this paper is to call to your attention the existence of cases of schistosomiasis in the United States and to discuss briefly the various types of the disease. Interest in the nature of the disease

*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 26, 1939.

was aroused by the accidental finding of a case of schistosomiasis in a Japanese patient several years ago which has not been reported but is included in this paper as a matter of record.

In man three forms of this disease have been described, namely; schistosomiasis hematobium, schistosomiasis mansoni, and schistosomiasis japonicum. All three are caused by trematode worms or blood flukes.

SCHISTOSOMIASIS HEMATOBIUM

The worm responsible for the disease was first recovered by Bilharg (1851) from the mesenteric veins of a native of Cairo and was shortly afterwards demonstrated as the cause of hematuria in a native who was discharging terminal spined eggs in the urine.

The original focus of vesical schistosomiasis was probably the Nile Valley, and a study of mummies of ancient Egypt indicates that this was a common disease in the Nile Valley several thousand years ago. Many of the soldiers of Napoleon suffered from the disease during the Egyptian campaign. The disease today exists, in addition to this locality, in the greater part of Africa, in the Southern tip of Europe, in Western Asia, and in the islands off the eastern coast of Africa.

The worms live as adults primarily in the vesical and pelvic plexuses of the venous circulation, less commonly in the portal blood stream, and rarely in other venules. The sexes are separate. The male is the shorter, stouter organism, measuring 10 to 15 mm. in length and 0.8 to 1 mm. in breadth. The female is long and slender, and measures 20 mm. by 0.25 mm. After fertilization the eggs are laid in the venules, the worm moving along the venules as the eggs are laid in succession, one behind the other. This process is repeated until the venule is filled with eggs, when she migrates to another venule and fills this with eggs. The process is continued over a period of several years until all available venules have been used. Due to pressure within the vessel, the piercing action of the spine and lytic action, the egg breaks through the wall of the bladder. Together with extravasated blood, the eggs are then discharged in the urine usually at the end of micturition. The eggs are yellowish brown, possess a distinct terminal spine, and measure 112 to 170 microns by 40 to 70 microns.

On dilution with ten or more parts of water the viable eggs hatch and miracidia escape as free swimming organisms. On contact with the appropriate species of snails, and in a course of four to eight weeks, they undergo multiplication and development in its tissues with production of two generations of sporocysts, and finally fork-tailed cercariae break out of the snail in swarms. Daily discharges of cercariae may take place over a period of from ten to 75 days. Many snails have been incriminated.

On leaving the snail the cercariae swim vigorously through the water tail first, at times sinking to the bottom and then swimming back to the surface film. If human beings bathe or wade in this infected water, the cercariae come in contact with the skin most commonly at the surface film, and as the water evaporates they enter the skin for protection, casting off their tails. Their free living existence is limited at most to three days, usually 25 hours or less, during which time they are unable to feed. Skin penetration is effected by forceful ramming of the anterior ends into the skin, accompanied by the digestive action of liquids poured out by the penetration glands. Entry below the epidermis is accomplished in less than half an hour. Usually within 20 to 24 hours, the larvae have gained access to the peripheral venules through which they are passively transported to the right heart, from which they pass into the pulmonary capillaries. Some are side-tracked in peripheral lymph nodes, but usually they work their way through these into afferent blood vessels. Several days are required to squeeze their way through the pulmonary capillaries into the pulmonary venules, after which they are carried through the left heart into the systemic circulation. The majority pass into the abdominal aorta. Only those survive which get into the mes-

enteric capillaries and enter the portal circulation. In the intrahepatic portion of the portal circulation the larvae begin to feed and to grow, become sexually differentiated, move out of the liver into the inferior mesenteric veins, and eventually pass to the vesical and pelvic plexuses where they arrive one to three months after passing through the skin. The cercariae may enter by way of the mouth but are destroyed by gastric juice.

Epidemiology: The disease is perpetuated by infected individuals who deposit urine and feces in or near watering places containing the appropriate intermediate host. Sewerage from infected areas emptied into streams adds to the infection.

The clinical aspects of the disease may be divided into three stages: (1) The incubation period; (2) period of egg deposition and extrusion; (3) period of tissue proliferation and repair.

Incubation Period: This period usually lasts about three months and not less than one month, and covers the time from cutaneous exposure to the cercariae until eggs are first laid by the females. The first manifestations are due to entry of the parasites in the skin which causes irritation and itching followed by petechial hemorrhages shortly afterwards. These last usually one or two days and there are no further indications until near the end of the period when toxic symptoms appear consisting of headache, anorexia, malaise, general pains most severe in the back and extremities, fever, sweating, and often severe urticaria. The blood count shows a leukocytosis with eosinophilia, often 50 per cent or more. The liver and spleen are enlarged and tender.

Period of Egg Deposition and Extrusion: There may be several months between deposition of eggs and their first appearance in the urine, which usually occurs with the passage of a small amount of blood on urination. This may continue for months or years. Later, there is burning on urination, desire to urinate, bladder colic and suprapubic pain. Cystoscopic examination reveals thickening and inflammation of the mucous membrane of the urethra and bladder, with concretions of urates and oxalates around the eggs as conglomerations in the bladder. The perivascular tissues become infiltrated with eggs surrounded by leukocytes, eosinophils and giant cells leading to abscess and tubercle formation. Most of the eggs are found in the mucosa and muscularis of the organ and some remain in the venules producing endophlebitis and thrombosis. Many of them undergo degeneration and calcification.

Period of Tissue Proliferation and Repair: This stage occurs following the previous one and consists of general hyperplasia of the bladder wall with fibrosis and development of "sandy patches" and secondary infection. Formation of calculi and sloughing of bladder mucosa increases and the urethra may be occluded by hyperplasia of the wall, and sloughing material and calculi in the lumen coming down from the bladder. Pyogenic infection produces discharge from the urethra, elephantiasis, and peri-urethral abscesses and fistulae. The patient becomes extremely weak, with painful micturition of blood and pus, and the patient may finally succumb to the infection. Malignant growths of the bladder are common. In many cases the eggs may be carried into the inferior mesenteric veins and produce schistosomial appendicitis, involvement of the colon, sigmoid and rectum, and the eggs may be found in the feces. The eggs and even the worms may be swept to the liver through the portal vessels and produce abscesses and tubercles with subsequent fibrosis. Rarely the eggs reach the brain and cord and produce nervous disorder.

Diagnosis: Specific diagnosis depends upon the identification of the eggs discharged in the urine and feces. Complement fixation test may be helpful during the latter part of the incubation period.

Prognosis: The prognosis is excellent to fair in treated patients; grave in untreated patients.

Treatment: Symptomatic treatment is of little value unless combined with chemotherapy. Specific treatment consists of the administration of sodium antimony tartrate (tartar emetic) intravenously, or fouadin

intramuscularly. Complications must receive appropriate treatment.

Prevention: Infection appears to confer little if any immunity. Chemotherapy control is of little value. Educational campaigns, proper disposal of excreta, and general sanitation offer the best means of prevention.

SCHISTOSOMIASIS MANSONI

This disease is common in the Nile Delta and throughout many other parts of Africa. It is also common in northern Brazil, Venezuela, Dutch Guiana, and Puerto Rico. Occasional cases in Arabia and the Lesser Antilles have been found.

The adult worms resemble those of schistosomiasis hematobium but are somewhat smaller. The eggs have a lateral spine and measure 114 to 175 microns in length by 45 to 68 microns in transverse diameter. The mature worms are typically found in the mesenteric venules draining the large bowel and posterior segment of the ileum, occasionally in the superior mesenteric vein, vesical plexus, and intrahepatic portion of the portal vein. The eggs are laid one by one in the venules through which they soon break and migrate through the intestinal wall. The eggs escape into the lumen of the bowel and, accompanied by blood, are passed in the feces. When mixed with water the eggs hatch rapidly. The life cycle within the snail parallels that of *Schistosoma hematobium.*

The *pathology* and *symptomatology,* like schistosomiasis hematobium, are divided into three stages: (1) The incubation stage which is like that of schistosomiasis hematobium; (2) the stage of egg deposition and extrusion involving primarily the intestinal wall, the liver, and spleen. The egg extrusion is accompanied by classical schistosomiasis dysentery. This period is one of abdominal pain, frequent stools with blood and mucus, containing many lateral spined eggs. The intestinal wall becomes inflamed, thickened and fibrosed, with ulceration and abscess formation. Papillomata of the bowel mucosa are common and the mesenteric lymph nodes, liver, and spleen are enlarged. The eggs may escape into the tissues of the lungs, pancreas, spleen, kidneys, liver, adrenals, heart, and spinal cord. (3) In the third stage of tissue proliferation and repair, there is fibrosis and thickening with narrowing of the intestinal wall. Papillomata, ulceration, malignant changes, and fistulae develop. In a small percentage of cases eggs reach the bladder and escape in the urine. Cirrhosis of the liver, enlargement of the spleen, and ascites occur.

Diagnosis: Diagnosis depends usually on finding the lateral spined eggs in the feces. Other helpful findings are the blood count with marked eosinophilia and the complement fixation test.

SCHISTOSOMIASIS JAPONICUM

This infection is confined to areas in the Far East. The disease is very common in China, some parts of Japan, and has also been found in the Philippine Islands.

The worms resemble *Schistosoma hematobium* and *Schistosoma mansoni.* The eggs measure 70 to 100 microns by 50 to 65 microns when discharged in the feces. The eggs have no terminal or lateral spine, but on the side near one end there is a depression from which there extends a small spinous process, or abbreviated spine like a curved hook in the mature egg.

The adult worm of schistosomiasis japonicum inhabits the radicles of the superior mesenteric vein draining the small intestine, where the eggs are deposited by the female and passing through the submucosa and mucosa are deposited in the lumen of the bowel together with extravasated blood. Visible eggs which are passed in the feces are usually mature and require only water to hatch and allow the miracidia to escape. On contact with the appropriate snail, these enter the flesh of the mollusk and undergo development with final liberation of fork-tailed cercariae. These cercariae on contact with the skin of mammals penetrate the skin to the capillary beds, enter the circulation, and pass through the right heart, lungs, and the left heart to the general circulation. Those

that enter the intrahepatic portal circulation proceed to feed and grow, and migrate to the venules of the superior mesenteric vessels. Within five weeks, the worms mate and the females are laying eggs. In addition to man, dogs, cats, rats, mice, cattle, and horses are naturally infected and constitute reservoirs of infection.

Diagnosis: Specific diagnosis depends upon finding the characteristic eggs in the feces. The complement fixation test, blood count, and history are helpful.

Epidemiology, prognosis, treatment, and *prevention* are essentially those of schistosomiasis hematobium and schistosomiasis mansoni. The pathology and symptomatology resemble schistosomiasis mansoni, but the changes, especially in the liver, spleen, and lymph nodes, are more pronounced. The mesentery and omentum frequently become thickened, binding down the colon and producing an upper and lower abdominal distention. Children are retarded in physical and mental development. Anemia is conspicuous, and mesenteric and portal thrombosis occur. Rarely eggs reach the lungs, bladder, and capillaries of the brain. The third stage may last years and be terminated by pneumonia and other bacterial infections.

INCIDENCE AND DISTRIBUTION

Schistosomiasis is rare in this country, but there has been an increasing number of cases reported in recent years. Goldey,[1] Rhia and Christensen,[2] Stevens,[3] Vermooten[4] and others have reported cases of schistosomiasis hematobium or urinary bilharziasis. Levine and Marin,[5] Hoff,[6] Clarke and Graef[7] published cases of schistosomiasis mansoni. Schistosomiasis japonicum has been reported by Hayward,[8] and by Greenfield and Prichard.[9] Cutler[10] reviewed the literature and found 22 cases of schistosomiasis had occurred up to 1926.

In recent years numerous cases of "schistosomiasis dermatitis" have occurred in the Great Lakes region. It is claimed that the dermatitis is caused by a non-human variety of schistosoma. Cort[11] studied the distribution of schistosomiasis dermatitis in Canada and the United States and found it particularly prevalent in Minnesota, Wisconsin, Iowa and Michigan, with scattered cases in Texas and Florida. In this country, the dermatitis is contracted from wading or bathing in water polluted with the infecting cercariae of this type of schistosoma. It differs from schistosomiasis japonicum in that the lesions are primarily cutaneous and associated with a severe itch. Peacock and Voegtlin,[12] Edwards and Brackett,[13] Cort[14] and others have also reported cases of so-called "swimmer's itch."

CASE REPORT

The following case report of schistosomiasis japonicum is presented:

N. F., a male, aged 27, Japanese by birth, resident of New Orleans for the last few years, was taken acutely ill with vomiting and abdominal pain on September 6, 1929. The blood count made at that time showed a total white count of 9,000 per cm. Differential: lymphocytes, 13; neutrophiles, 84; eosinophiles, 3. The urinalysis was negative.

Because of a torrential rain and flooding of the streets about the patient's residence, it was impossible to move him at once; but the following morning he was removed to Mercy Hospital and an appendectomy was performed by Dr. W. P. Gardiner. The patient made an uneventful recovery. The appendix measured 9 cm. in length and showed marked congestion of the superficial vessels. Cut section showed the wall and mucosa to be thickened and edematous, and the lumen contained blood, pus and fecal material. Throughout the wall were numerous shiny areas varying in size from one to three mm.

Microscopic examination showed acute and chronic exudative and chronic proliferative appendicitis. Numerous ova of *Schistosoma japonicum* were found in the wall of the appendix, many of which showed degeneration and calcification.

Attempts were made to obtain a specimen of feces for examination for eggs, but the patient became suspicious of some unusual findings in his case and refused to give any specimens or further history of his case.

SUMMARY

1. The distribution, description of parasite and life cycle, epidemiology, pathology, symptomatology, diagnosis, prognosis, treatment and prevention of the three forms of human schistosomiasis are described.

2. Non-human types of schistosomiasis present in certain parts of this country

give rise to schistosomiasis dermatitis and "swimmer's itch."

3. A case of schistosomiasis japonicum, with involvement of the appendix, is reported.

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PRIMARY SYPHILIS IN AN 89 YEAR OLD MAN*

REPORT OF A CASE

J. W. TEDDER, M. D.

NEW ORLEANS

I would like to report a case of primary syphilis in a white male, aged 89 years. This man was referred to my office one month ago by Dr. J. N. Roussel with a tentative diagnosis of primary syphilis. He asked that I confirm this diagnosis by dark field examination. This was done and it was positive.

CASE REPORT

The history of the individual is quite interesting. He was born in 1850, in Norway, and all except the first two years of his life have been spent in the United States. He came to New Orleans to see and partake of the festivities having to do with Mardi Gras. He gives a history of several exposures to the same source, followed ten days later by the appearance of a lesion on the glans penis.

Examination of this individual did not reveal any evidence of secondary eruption or mucous patches, but there was a small ulcer, 1 cm. in diameter on the left side of the glans with definite margins, and a serosanguineous discharge.

Examination for spirochetes showed the lesion to be teeming with this organism. I consulted the referring doctor and took a Wassermann, smears for staining and he advised me to start treatment. I limited treatment to bismuth salicylate intramuscularly. After the third injection, the lesion had healed completely without local applications of any nature. There was a small lymphadenopathy in the left inguinal region. That was the only complicating factor of the lesion on the penis. The Wassermann was negative.

Realizing that this diagnosis would be subject to just criticism, I consulted Dr. J. Pratt. His statement was that it was a typical primary lesion of syphilis clinically.

The man responded well to therapy to date. I had a letter from him yesterday and he tells me that he has had no recurrence and feels fine. I put him on mixed treatment until he could report to the next doctor.

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*Read before the Orleans Parish Medical Society, April 10, 1939.

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THE MEMPHIS MEETING OF THE SOUTHERN MEDICAL ASSOCIATION

The latter part of this month there will be held in Memphis the meeting to which innumerable Southern doctors always look forward with pleasure and anticipation. The Southern Medical Association will hold its thirty-third annual convocation in a city which is noted for its hospitality and for its excellent physicians. As usual there has been prepared a splendid program. Suffice it to say here that on the first day will be given a clinical program presented entirely by Memphis doctors and one in which all specialties will have representation. The next morning the clinical session will be continued and thereafter there will be held nineteen sectional meetings at which the most recent scientific studies will be given by outstanding physicians from the South, as well as from the North and West.

In addition to the scientific section meetings, there are held conjointly other medical society and medical organization meetings. The American Society of Tropical Medicine, of which Dr. A. C. Reed of San Francisco is president and Dr. L. L. Williams, Jr., of Washington, is president-elect, will meet at this time. The National Malaria Committee, with Mr. L. M. Clarkson of Atlanta as chairman and Mr. W. G. Stronquist of Chattanooga as chairman-elect, will also hold their annual gathering. The Southern branch of the American Public Health Association, of which Dr. J. N. Baker of Montgomery is president, will likewise get together at this time. The Southern Association of Anesthetists and the women physicians of the Southern Medical Association will also convene.

The Southern Medical meeting has always been noted for its good fellowship and for its social features. Knowing the Memphis physicians, one can be assured that the high standards of cordiality in their various entertainments will be well maintained. To those who have never previously attended a meeting of the Southern Medical we would urge their going to Memphis the week of November twentieth. To those who have been regular attendants at this outstanding meeting, which is unique in medical circles, such a suggestion is not needed. Those who have gone before will go again. As a very large number of Southern physicians will attend this meeting it would be advisable to engage hotel accommodations promptly.

SOME REMARKABLE PHASES OF THE WAR

There are very many asides in the great war which apparently bear very little direct relationship to the conflict. Innumerable people change their habits of life and their ways of living during a great military upheaval, yet they are not fighters and not directly connected in any way with war.

One of these unusual phases of the present European unpleasantness bears directly upon the future of American medicine. For example, there is a large group of American men studying in Scotland in Scottish schools who can no longer obtain a medical education in these institutions of learning. They are now making an earnest effort to be admitted to American medical schools, so much so that they have interested the Secretary of State in their dilemma. Most of the states and state boards of medical examiners will not admit these men from Scotland. Their education is inadequate or they would have been admitted to American schools and their training in Europe is not comparable to that obtained by the American students.

In order to maintain the high standards of the medical profession, ethically and scholastically, and to have men of high character enter the medical profession, it has been necessary to scrutinize rigidly the applicants for admission to the medical schools, investigating not only their educational training but also looking into the stock from whence they came and the character that they have built up. As a result of this, the American medical profession stands out as the finest profession in this country or in the world. It is composed of men of high accomplishments, men of integrity, honesty and decency. If the bars are let down and a large number of men admitted to the medical schools it would be obviously unfair to the present medical profession and unfair to those who will be physicians and who are already in the universities. Every medical school has a definite limit to the number of men it can accept and this limit is based on the facilities for training and the instructors available for teaching. If the given number at any medical school is abruptly increased then the students will suffer.

Another evidence that there is an effort to lower medical standards is borne out by a series of resolutions that were passed by Service Clubs Post No. 546 of the American Legion. These resolutions advocate selecting students for admission to the medical schools based on physical fitness and adaptability for military service. They recommend that for admission to the medical schools, R. O. T. C. graduates should be given preference and lastly, and most disturbing, that the number of admissions of students to medical schools annually should be increased so that there would be enough doctors to serve the military force in time of war, at the same time to leave a surplus of doctors, after mobilization, sufficient to serve the anticipated needs of the civilian population. If these resolutions were followed out, just as if the propaganda of the American Medical Clubs of Scotland proved successful, it would mean an increment of poorly trained men to the medical profession which at the time is amply large enough to care for the needs of the civilian population and which under stress of possible war, even if a large number of medical men were mobilized, would still be able to care for the civilian population.

Efforts to increase the number of doctors by lowering qualifications for entrance into this profession should be decried by all thinking gentlemen.

PAIN AND SNAKE VENOM

One of the real problems the practitioner of medicine often has to contend with in his practice, is the relief of intractable pain. Every physician sees patients who have carcinoma and so gradually are dying as result of this condition. Sometimes their pain is so severe that relief can be obtained only through the use of morphine or opium and often these patients become addicts, a deplorable complication which often leads to great unhappiness. There are a host of other causes for severe pain, controlled only with the greatest difficulty. If

some method were evolved whereby these patients might be returned to work for a while, whereby their general health might be improved by relief from the constant suffering and if the procedure would also give a sufficient amount of comfort so that less powerful habit-forming drugs could be employed, such a method should be a boon to humanity.

Some ten years ago a Cuban leper was bitten by a poisonous spider; the leper was promptly relieved of severe pain in his arm. This observation was brought to the attention of Calmette of the Pasteur Institute. He proceeded to investigate the possibilities of this plan of treatment of pain, with gratifying results. Assuming that animal poisons might relieve pain he chose for experimental work cobra venom, as it is richest in neurotoxins. About four years ago cobra venom began to be used in this country under the stimulation of Macht. Since that time a few others have reported upon the satisfactory results obtained from this form of therapy.

A recent report by Rutherford* confirms that which has been the experience of others who have used cobra venom. He reports on some seventeen patients, most of whom had carcinoma. In eight of these, or nearly 50 per cent, there was practically complete relief of their intractable pain. In only two was the relief not pronounced, classified according to the author as 50 per cent or less relief. In the other seven the percentage of relief was between 50-95 per cent. In other words, in 88 per cent of patients relief was 50 per cent or more.

Cobra venom is given in quantities equivalent to five mouse units, 1 cubic centimeter. This is given intramuscularly. After the initial dose, the dosage was increased to 2 or 3 c. c., 10-15 mouse units, and continued for four or six days until relief was obtained. It is then possible to lower the dose to a maintenance level which has been found to be approximately 1 c. c. given every other day. The first few doses of venom may produce local tenderness, but subsequent injections after a few weeks fail to produce this reaction.

Cobra venom can be given by the patient. It is not expensive and there is no danger of addiction. As Rutherford said, it offers a real possibility of helping in the management of a very difficult group of patients.

*Rutherford, R. N.: The use of cobra venom in the relief of intractable pain, New England J. Med., 221:408, 1939.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY
New Orleans

The regular monthly meeting of the Medical Staff of Touro Infirmary was held on Wednesday, October 11, 1939. at 8 p. m.

The first order of scientific business was the clinico-pathologic conference conducted by Dr. John A. Lanford. Next Dr. Dean H. Echols presented cases of tic douloureux and brain tumor. This was followed by case presentation of a patient suffering from blood dyscrasia (aplastic anemia) by Dr. C. J. Tripoli. This presentation was discussed by Dr. J. D. Rives. Dr. L. H. Landry then spoke on unusual complication following Rammstedt operation.

SOUTHERN BAPTIST HOSPITAL
New Orleans

The regular monthly meeting of the Clinical Staff of the Southern Baptist Hospital was held on Tuesday, October 24, 1939, at 8 p. m.

The scientific program included a presentation by Henry Laurens, Ph.D., entitled "Physiology and Surgical Significance of the Autonomic Nervous System." Dr. Gilbert C. Anderson reported on the "Present Status of Treatment in Craniocerebral Injuries." The last scientific business was a case report of tuberculous splenomegaly presented by Dr. C. C. Stapp from the service of Dr. E. Z. Browne.

NORTH LOUISIANA SANITARIUM

The regular meeting of the North Louisiana Staff was called to order September 26 by the President, Dr. George Wolfe, there being thirty members and three guests present.

The scientific program was as follows: Dr. Rigby presented four cases illustrating the indications for cesarean section, namely, dystocia, breech presentation in a primipara 36 years of age with a borderline pelvis, twins with early toxemia of pregnancy. Dr. Rigby's cases were dis-

cussed by Drs. Mays, Hargrove, and Scott.

Dr. Mays presented a case of hypertension of pregnancy of gradual onset in a primipara, gravida 1, 36 years of age, and a second case of hypertension of pregnancy of sudden onset, gravida 2. He used these cases as illustrations in his discussion of the treatment of toxemia of pregnancy. Dr. Mathews discussed the pathology of toxemia of pregnancy, and Dr. Mays' cases were further discussed by Drs. Herold, Wolfe, Bishop (Capt., U. S. M. C.), and Hargrove.

N. Judson Bender, M. D., Sec.

J. T. NIX CLINIC

New Orleans

At the meeting held in October, Doctor J. A. Gaudet presented the following paper:

THE SERODIAGNOSIS OF SYPHILIS WITH FURTHER TABULATIONS OF RESULTS OBTAINED BY THE WASSERMANN AND LAUGHLEN REACTIONS

"Young man, know syphilis—know tuberculosis—in all of their manifestations, and you'll know medicine." This dictum has been promulgated to the novice in medicine, almost prosaically, and experience in later life bears out the scientific verity of the teaching. Possibly, because it is such a mimic or because it is so often cloaked and involved as to be beyond recognition, the former stalwart of mankind's common ills—syphilis—presents the gravest diagnostic difficulties, so that, it is indeed fortunate that the clinical laboratory can offer the clinician some sound and practical aid. Dark-field and other methods of direct examination of the local lesion expressions render the perception of the disease comparatively simple in its primary stage; however, in its later and mystifying stages, serodiagnosis—the recognition of changes produced in the blood serum—is the character of laboratory aid depended upon.

Our present day serologic differentiation of syphilis is accomplished by: (a) the complement fixation test; (b) the precipitin or flocculation reactions, and (c) a variety of miscellaneous tests. The complement fixation test, represented by the Wassermann reaction and its ilk, utilizes the "bait" principle wherein added complement and antigen search out the presence of syphilitic infection as denoted by the presence of syphilitic amboceptor (syphilitic antibody), so-called "reagin"—according to the third order antigen—antibody workings of Ehrlich's figurative "Side Chain Theory"[1]—all of which is figment since syphilitic amboceptor is a questionable body and all that is tangible of the reaction is figment since syphilitic amboceptor is a questionable body and all that is tangible of the reaction is that complement, "the key ingredient", is absorbed or "bound" in unusual amounts by syphilitic serum in the presence of alcoholic, organic extracts. The reaction embraces five factors: complement, antigen (organ extracts), "reagin" (syphilitic amboceptor?), hemolysin, and erythrocytes, all of which are biologic complexities and prone to a multiplicity of individual variations. Like a chain which is no stronger than its weakest link, the reaction is no better than its most indefinite ingredient.

Theoretically, "reagin" should be a stable body; practically inactivation temperature (56° C.) damages and "slows" it down, and since it renders inert complements, anticomplements, certain proteolytic substances and other potential false positive sources, inactivation is a procedure essential to the proper mechanism of the reaction and its dependability. It is a step which on the one hand decreases the sensitivity of the reaction and on the other hand it is one which increases its reliability.

The complement fixation test is rife with possibilities of error; its technic is intricate, time consuming and cumbersome, and it demands experienced operators, expensive apparatus and scrupulous scrutiny; yet behind it is time and repute, and it probably occupies the prime position as a laboratory aid to the diagnosis of syphilis.

The precipitin or flocculation tests as represented by the Kahn or one of its numerous types (Meinecke, Sachs-Georgi, Verne, Eagle, Murata, Müller, Kline, Rosenthal, Weiss, Hinton, Johns and many others) is understandable by reference to the antigen-antibody scheme of the second order of Ehrlich's "Side Chain Theory."[2] The reaction includes only two factors, antigen and antibody, and it is distinctly less prone to errors due to variations in its components. It does not require inactivation and it may be run in the presence of anticomplementary substances which would render the Wassermann system ineffective; it is not influenced by temperature or climatic changes and may be run in any part of the world. It is cheaper, simpler, less time consuming (the Kahn requires one hour for its completion), and does not demand such skilled technical operation. Though not so distinctive as the Wassermann reaction, it is the test most extensively used today.

The miscellaneous tests such as Ide's coloring reaction,[3] the epiphanin reaction,[4] the miostagmin reaction,[5] and others offer little concrete aid; they are either so technical or unreliable that their use has never become general.

Possibly, the optimum of laboratory support may be tendered by routine "check-up" of a basic Wassermann system with one of the simpler second order reactions, as the Kahn or a more rapid and practical modification, thus enabling one to recheck and more carefully scrutinize discrepancies.

G. F. Laughlen has coined a simple and rapid serologic test for syphilis based on the flocculation principle which fits very satisfactorily into this scheme.[6] The test is to be recommended because it may be completed in ten minutes or so; it is easily read; it does not require any great degree

of technical skill or expense for its performance; preliminary tampering (inactivation) with the serum to be tested is unnecessary; and only a drop of it is required; it is suitable for emergencies and, as the technic is similar to that of blood matching, it is adaptable as a pretransfusion measure; and it is sufficiently reliable and sensitive. Lever and Massie concluded after a series of 780 comparisons that the Laughlen test was less sensitive and more specific than the rapid Hinton modification but more sensitive and less specific than the Kahn test.

Laughlen claimed a 98 per cent agreement with the Wassermann and a 99 per cent agreement with the Kahn based on examinations of 400 blood sera and 20 spinal fluids. He further maintains a close agreement with several hundred positive sera. Robinson and Stroud[8] reported 1,000 sera with a 93 per cent tally with the Wassermann and a 97 per cent tally with the Kahn.

The following is a tabulation of the results of 627 sera routinely examined at the clinic in conjunction with the Wassermann test.

Wassermann negative and Laughlen negative	493
Wassermann strongly positive and Laughlen strongly positive	116
Wassermann negative and Laughlen positive	3
Wassermann positive and Laughlen negative	3
Wassermann weakly positive and Laughlen negative	4
Wassermann anticomplementary and Laughlen negative	8

In this, there is close to a 98 per cent agreement with our Wassermann system, substantiating Laughlen's original contention.

The Laughlen test is a slide variation of the flocculation principle which employs an alcoholic, beef-heart extract modified by the addition of certain amounts of cholesterol, compound tincture of benzoin and a water-insoluble dye, Scarlet R or Sudan III. As the antigenic particles lock with their specific antibodies and are precipitated out of solution, the water-insoluble dye colors them and renders them more visible. The cholesterol and compound tincture of benzoin are added to increase the sensitivity of the reaction. The technic is almost fool-proof and consists in placing a drop of unknown serum on a clean, dust-free slide; then, adding an equal amount of activated Laughlen reagent and tilting the slide repeatedly for ten minutes, observing constantly against a dark background through diagonal rays of light. A positive is indicated by the formation of coarse red granulations which "grow" and become more distinct within ten minutes. Absence of true conglomerate granule formation or prolongation of the act beyond ten minutes indicates a negative reaction. Time is the factor which determines the positivity of a serum; the degree of granulation does not spell the grade of the positivity, that is, a strongly positive reaction and a weakly positive reaction might have the same amount of granulation. A strongly positive reaction is depicted by conglomerate forming within five minutes; between five and ten minutes indicates a weakly positive reaction; and beyond ten minutes a negative reaction.

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HUTCHINSON MEMORIAL CLINIC OF THE SCHOOL OF MEDICINE THE TULANE UNIVERSITY OF LOUISIANA

New Orleans

Scientific Session, with Presentation of Cases, conducted by the Department of Medicine, Dr. Roy H. Turner presiding:

Graves' Disease (Dr. H. T. Engelhardt): The case which I shall present tonight is in the nature of a problem. It is by no means a rare one, since it is not infrequently seen in practice.

This patient was sent to the Department of Medicine with the provisional diagnosis of rather marked Graves' disease. She stated that for some time her friends had commented, with increasing frequency, upon the gradual enlargement of her neck, particularly during the last three months. At the same time, they called her attention to an increasing tendency to "pop-eyedness." The patient was aware of these signs when she compared photographs taken at different times during the last year.

The patient has become quite nervous, particularly during the last three months, and has noticed a tremor of her hands. She states that she perspires more freely in the summer than any of her friends, and seldom complains of cold hands and feet in the winter. There is no history of headache or complaint referable to eyesight, nor is she aware of any discomfort in her neck. She complains of dyspnea on exertion, but not of any palpitation of her heart. Her appetite is good, and in spite of excessive eating, she has lost approxi-

mately fifteen pounds within the last three months. She has no trouble in digesting her food, which is very low in protein. In addition, she drinks six to eight coca-colas daily. She has no urinary complaints but states that she has missed last month's menstrual period. She becomes tired in her legs when she walks upstairs, and sometimes she even feels the muscles tremble. Her past history presents nothing of particular significance, except for two miscarriages, nor does the family history. She uses tobacco and alcohol to extremes, and sleeps poorly.

On physical examination, her blood pressure was 140/85; pulse 100; temperature 98.6°. The patient is a well developed and well nourished white female, who is obviously nervous, and whose skin is warm and moist to touch. The eyes seem to be more prominent than normal; the palpebral fissure is widened and there is a suggestion of von Graefe's sign. The pupils react normally to light and to accommodation. The neck reveals a smooth, symmetrically enlarged mass in the region of the thyroid which gives no thrill on palpation nor is a bruit to be heard. The lungs are essentially negative, as well as the heart, except for a rate of 100. Examination of the genitalia reveals a lacerated, yet fairly soft cervix which admits the tip of the small finger. The uterus is normal in size and position. The reflexes are all hyperactive, with no pathologic ones present. There is a fine, definite tremor of the hands. There is a marked quadriceps weakness. The laboratory work showed: Blood and urine, normal; electrocardiogram, within normal limits; blood cholesterol, 185 mgms./100 c. c. of blood. X-ray of chest revealed no abnormalities. Two basal metabolic rates were obtained five days apart, one showing 0, the other minus 2.

Here we have a patient whose history and physical examination certainly would lead one to suspect hyperthyroidism. Yet one is met with a 0 basal metabolic rate and a minus 2 basal metabolic rate. It is difficult to overlook such figures, although one cannot help wondering what her metabolism was six months ago before she developed these signs and symptoms that she presents tonight, and what they will be six months from now. Is she in a remission now—perhaps? Only time will tell. The examination of this patient would hardly suggest a neurotic basis, I believe.

However, there is one fact that I have not as yet mentioned. Besides a low protein diet, she has been taking iodized salt for the last five months. This fact is of interest when one knows that the average daily intake of iodine is from 1-2 mgm., and that as low as 0.75 mgm. of iodine has been shown to lower the basal metabolic rate in some cases.

The final diagnosis is certainly not clear, but probably a clearer picture may present itself after the patient has been on a diet low in iodides.

Postoperative Myxedema and Subsequent Pregnancy (Dr. L. K. Levy): This 21 year old woman was first seen in consultation on January 9 of this year. The original and sole complaint was ankle edema. One month previous to this visit a subtotal thyroidectomy had been performed. The basal metabolic rate was plus 74 a few weeks prior to operation and it was reduced to plus 26 by the time of operation. A preoperative electrocardiogram was interpreted as being "very strongly suggestive of myocardial disease."

About two weeks after operation, which was two weeks before I saw her, she noted swelling of her ankles when she began to sit up and this condition was exaggerated as she moved about. Other symptoms pointed to a mild hyperthyroidism. When I first saw the patient the blood pressure was 122/78; the pulse rate, 74, and the weight, 138 pounds. At that time, a bilateral and symmetrical slight pitting edema of the ankles was noted. Her usual weight was 150 pounds and it was 130 pounds one week prior to operation. The basal metabolic rate was now minus 3; blood cholesterol, 214 (upper limit of normal being 200 in our laboratory); the blood NPN was 34, and the serum proteins were normal. The electrocardiogram showed the T waves upright in leads 1 and 2 and the QRS complexes were not small.

About two months postoperatively, she began to complain of tiring rather easily and of intolerance to cold. By April 27, which was four months postoperatively, she had gradually gained twenty pounds; the pulse rate was 62; the blood cholesterol had slowly risen to a value of 272; the basal metabolic rate had gradually fallen to minus 28, and the skin of the hands was dry and cracking. The electrocardiogram showed T waves inverted in all leads. On this date, thyroid medication was begun with one grain daily, the dosage being gradually increased over the next two months to two grains, only to be reduced to one and one-half grains daily shortly afterwards. This dosage has been maintained.

The following changes were noted after thyroid medication was begun: The T waves in the electrocardiogram became upright two weeks after the medication was begun and were of normal height four months later; the basal metabolic rate gradually rose to minus 12 and later dropped to minus 20 when the dosage was reduced to one and one-half grains and the metabolic level has since remained at minus 12; the weight dropped five pounds rapidly and has subsequently risen eight pounds; the blood cholesterol rapidly dropped to 194; the hands were rapidly returned to normal and the edema rapidly disappeared. The x-ray reports throughout observation showed no enlargement or reduction of the heart shadow.

The one and only time this patient has menstruated since operation was two weeks prior to the time thyroid medication was begun. The Fried-

man test was reported positive two months after the medication was begun.

Although myxedema was suspected, treatment was delayed for the very good reason that there was not sufficient evidence to support a definite diagnosis until very shortly before treatment was begun. Pitting ankle edema and the electrocardiographic changes prior to operation made necessary the elimination of possible cardiac failure. Pitting ankle edema is present in about one-half of myxedematous cases. The circulation time, although prolonged, was of no value in aiding in a differential diagnosis in this instance because it is prolonged both in cardiac failure and in myxedema. The value for venous pressure, however, was well within normal limits which is inconsistent with a diagnosis of cardiac failure and is usual in myxedema. An extremely unusual feature of this case, previously unrecorded so far as I have been able to determine, was the presence of mucous edema coexisting with a basal metabolic rate of minus 3. This edema became progressively more marked and reached a maximum when the basal metabolic rate fell to the lowest level of minus 28. In experimental athyreosis, the basal metabolic rate rapidly drops to minus 30, or below, with the rapid appearance of all signs and symptoms of marked hypothyroidism and with the appearance of mucous edema as the last and the "specific" thyroprival sign. All cases that have been reported of postoperative myxedema and myxedema induced by total ablation of the thyroid gland in congestive failure consistently showed a maximal drop in the basal metabolic rate some time before myxedema appears. It is unusual for full-blown myxedema to develop with a basal metabolic rate higher than minus 35. The basal metabolic rate and cholesterol values may or may not show reciprocal changes as they did in this case. The electrocardiographic changes that took place are practically pathognomonic of marked hypothyroidism.

I would like to say a few words about the dosage of thyroid in myxedema. You will note that an initial dosage of one grain was used and this was gradually increased to two grains daily, subsequently being reduced to one and one-half grains. A small initial dosage was used because this is generally regarded as the best practice and it is also true that it may take but little thyroid to restore these patients. Because postoperative myxedema patients do not seem to tolerate thyroid as well as do spontaneous myxedema cases, the dose was cautiously increased. In the older age group, rapid increase in dosage is distinctly dangerous due to sudden strain on the heart which may lead to acute coronary insufficiency. This case illustrates very well the fact that one should treat the patient and not the basal metabolic rate. Although the basal metabolic rate was raised from minus 28 to only minus 12, the thyroid medication had to be reduced due to symptoms and signs of intolerance. At present, the patient is satisfactorily maintained with a basal metabolic rate of minus 20.

Hypometabolic states resulting from thyroidectomy may be classified into those patients with and those without myxedema. Approximately two per cent of patients having thyroidectomies for toxic goiter develop postoperative myxedema, which is permanent in approximately half of these. There is no way of predicting whether the myxedema will be permanent or temporary; it is simply necessary to use trial omission at intervals. It is of interest to note that cases of toxic goiter have been reported in which basal metabolic rates have been reduced to normal by operation and in which the administration of iodine produced a myxedematous state which was quickly overcome by omitting the iodine. This patient was receiving iodine when first seen and although the iodine was discontinued, no beneficial result was noted.

There is considerable difference of opinion regarding the significance and interpretation of basal metabolic readings during pregnancy. This difference is so marked that I am sure that the only safe plan for management of this case will be to follow the weight changes and pulse rate, and be on the lookout for symptoms and signs which may accompany a hypothyroid state. Whether myxedema will become better or worse during the course of pregnancy is unpredictable. There is no reason to attribute to the pregnancy any possible change in the myxedematous state that may occur when the pregnancy is concluded.

Diverticulosis (Dr. Grace A. Goldsmith): This patient presents a diagnostic problem frequently encountered in the medical clinic; that is, the determination of the cause of gastrointestinal complaints. Symptoms relative to the digestive tract are found in widely divergent pathologic states, yet these symptoms may be remarkably similar. In an individual over fifty years of age, whose presenting disturbance is gastrointestinal in character, malignancy should be the first consideration. This possibility should be ruled out by careful and thorough examination before another diagnosis is entertained.

This patient, a widow, 72 years of age, was admitted to the Clinic on November 22, 1938, complaining of epigastric distress of four months' duration. The pain was diffuse, poorly localized, and increased by foods which were bulky or high in residue. At times there was colicky abdominal pain without nausea or vomiting. There had been a loss of weight amounting to about twenty pounds. The patient had gradually eliminated one food after another from the diet because of this indigestion, so that when she came in to us she was living on cereals, toast and milk. She gave a history of constipation of about two weeks' duration which required a daily enema for relief. The only

significant finding in the past history was that since the birth of her last child thirty years ago, she had had an umbilical hernia which had been asymptomatic. On examination, the patient was found to be fairly well nourished, although the skin showed evidence of recent loss of weight. There was a generalized arteriosclerosis of moderate degree. Nothing of note was found on examination of the head, neck or chest. The abdomen showed an umbilical hernia, the ring measuring 5 cm. in diameter. The contents of the hernial sac could be readily reduced. There was tenderness in the lower left quadrant and the colon could be palpated in this area. Rectal examination showed nothing abnormal.

Here we have the problem of a person over fifty, who for the first time experiences gastrointestinal distress. What were the diagnostic possibilities? Some type of malignancy either involving the stomach or colon was the first consideration. Roentgenologic and laboratory studies were essential to come to any conclusion. The blood picture and urinalysis were normal. Stool examination showed occult blood. The chest x-ray and electrocardiogram were without pathologic findings. A gastric analysis after histamine stimulation showed a free acidity of 60, total of 70. This last finding does not rule out carcinoma of the stomach, but it makes such a diagnosis unlikely. X-rays of the stomach and colon after the administration of barium sulfate failed to show any abnormality aside from spasticity of the colon. In spite of this negative finding, it was thought that the patient was entitled to further examination by means of a barium enema. This showed multiple diverticula in the region of the descending colon. The question then arose, were the symptoms of which this patient complained due to low-grade inflammation in these diverticula; were they due to the umbilical hernia, or merely to a spastic and irritable colon? The question could not be definitely answered. However, it seems likely that mild diverticulitis was a factor in producing the symptoms of which she complained.

Treatment consisted in a low residue diet, antispasmodics, sedatives, and the administration of mineral oil to control the constipation. On this regime, the patient became symptom-free and showed a gain in weight. For the past year she has been well except for occasional slight abdominal pain after some dietary indiscretion.

Diverticulosis of the acquired type is found in five to ten per cent of individuals over the age of 45 years. The etiology is not completely understood. It is thought that with advancing age and atrophy of the musculature of the colon, increase in pressure and possibly stasis allow out-pouchings of the mucous membrane to occur. Diverticulosis alone is not the cause of symptoms. These are present only when there is an inflammatory reaction involving the diverticula, which occurs in 5 to 15 per cent of cases. When symptoms appear, they are of several types. One syndrome, due to diverticulitis, simulates carcinoma of the bowel with either chronic recurrent partial intestinal obstruction or acute obstruction. Another syndrome resembles acute appendicitis with pain in the abdomen, tenderness, rigidity, fever and leukocytosis. At times, the first evidence of diverticulitis is due to a complication in which the inflammatory lesion of the colon has spread to surrounding structures involving the bladder, and leading to the formation of a vesico-colic fistula. In still other instances, diverticulitis will cause rather vague symptoms, such as epigastric distress, cramping abdominal pain, constipation and bleeding from the bowel. This last clinical picture was the one presented by this patient. The treatment of diverticulitis is largely medical, consisting in a diet low in residue, antispasmodics and sedatives, and in preventing the development of constipation. Surgery is reserved for complications, and even then the procedures are restricted to only the barest essentials. The mortality following operation is apt to be high due to the infected field and the possibility of spreading infection throughout the peritoneal cavity.

Obesity with Amenorrhea (Dr. J. O. W. Rash): This young lady, 22 years of age, was admitted to the Clinic on September 1, 1939, complaining of obesity since the age of six and of rather scanty menstrual periods. She stated that her menstrual periods did not begin until she was 18 years of age, and that they lasted only one-half day, the interval averaging every two months. On admission, she weighed 331 pounds. At the age of seven years, she weighed 200 pounds; at 14, 270 pounds, and she reached the peak of 331 pounds in September when she decided to come in and do something about it. She is one of the most intelligent patients we have had in the medical clinic here. She has lost 31 pounds since September 1. I might add that she has a family history of obesity; her mother weighed 280 pounds. The patient has had none of the childhood diseases and her general health has been excellent.

On physical examination, we found a markedly obese individual, with adiposity chiefly deposited over the abdomen, hips, lumbar region and extremities. The hair on her head was noted to be rather fine and profuse. There was little hair on the extremities. The skin of the upper extremities and trunk was dry, over the lower extremities moist. Striations were noted on the trunk, thighs and upper part of the arms. The head, ears and eyes were normal. Visual field and ophthalmoscopic examinations were done and they were negative; the oral cavity was negative. The thyroid was not palpable; breasts were pendulous; the lungs and heart showed nothing abnormal. The abdomen, which was very obese, was very hard to palpate but was considered normal. Genu valgum was

noted. She was sent to the Department of Gynecology for a pelvic examination; the pubic hair was scanty and of female distribution, and they reported an underdevelopment of her external genitalia. The labium majora was absent on the right, rudimentary on the left, and the clitoris was moderately hypertrophied. On vaginal examination, the uterus could not be felt; the cervix was of normal size and consistency and not infantile. I might add that, on admission, her blood pressure was 152/90-100; pulse 92 and regular.

The laboratory work was as follows: Wassermann, negative; red blood cells, 4,270,000; hemoglobin, 70 per cent; urine, negative. We did a water tolerance test on September 17, giving her 1,250 c. c. of water to be consumed as rapidly as she could take it, and having her collect her urine every three hours. Seventy-five c.c. were voided at the end of the first hour, 68 c. c. at the end of the second hour, and 75 c.c. at the end of the third hour; specific gravities were 1.008, 1.008 and 1.015, respectively. On four successive days her fluid intake varied from 3,250 c.c. to 1,500 c.c., and her output from 1,500 c.c. to 750 c.c. We did a fasting blood sugar, which was 100 milligrams. Today we did a glucose tolerance test using 100 gm. of glucose. The blood sugars were as follows: 100 mg., first hour; 175 mg., one-half hour; 191 mg., one hour; 121 mg., one and one-half hours; 190 mg., two hours. No subsequent determinations were made. On September 16, her basal metabolic rate was minus 6, and, on September 28, minus 5. On September 19, an x-ray of the skull showed a slight enlargement of the sella turcica but there is no evidence of bone erosion. There were scattered areas of calcification in the falx cerebri in the frontal region. On September 30, right and left shoulders revealed ossification of all epiphyses.

She was placed on approximately 500 calories on September 11. On September 18, she weighed 318 pounds. Fluids were restricted to 2,000 c.c. daily. On September 29, she weighed 308 pounds; her blood pressure was 140/96. Her diet was increased to 633 calories and she was receiving 36 grams of protein daily. She was put on a low salt diet; fluids were limited to 2,000 c.c. daily. Vitamin concentrates were prescribed, and thyroid extract, one grain twice a day ordered. On October 10, her weight was 302½ pounds; blood pressure 120/76; pulse 90. Protein intake was raised to 60 grams daily; her diet was increased to 710 calories; fluids were limited to 2,000 c.c. daily, with low salt intake. Today she was in the clinic and weighed 300¼ pounds.

From a diagnostic standpoint, we felt that this patient presented a typical picture of Fröhlich's syndrome with dietary obesity. Myxedema, adrenal cortical tumor, pituitary basophilism and Dercum's disease were considered in the differential diagnosis.

A Cardiovascular Diagnostic Problem (Dr. W. H. Gillentine): I have a patient who is rather interesting for two reasons: First, she has a condition which is rare, there being only one other case reported in the literature similar to it; second, we cannot explain all of our objective findings.

This patient is 38 years of age. She is of Greek extraction and speaks very little English; consequently, her history is somewhat inadequate. As a girl, she suffered from attacks of weakness and faintness lasting two to three hours, which would occur once or twice a year without relation to exercise. The remainder of her medical history during childhood is irrelavent. She was unable to have children during the first two years of her marriage and, while in Europe, had some "female operation" to permit children. At that time, the surgeon told her that she had "heart trouble" and the operation was done under spinal analgesia. She has since had two living children, the second with symptoms of cardiac failure. Since the operation, the patient has had occasional attacks of precordial pain. This sometimes radiates to the left arm, is momentary, and is usually accompanied by shortness of breath and weakness. The left extremity becomes so weak that she is unable to bring it up to the shoulder level. These attacks have become more frequent in the last six or seven years. When these come on, if she is walking, she will have to sit down and sometimes loses consciousness momentarily. The remainder of her history is not significant.

On physical examination, we find normal reflexes and eye grounds. Patient has enlarged follicular tonsils. A loud systolic bruit is heard over both carotids, being louder on the right side where a diastolic element is also present. A thrill is present over the right carotid, maximal behind the angle of the jaw. Obliteration of the thrill by pressure directly over its maximal area or by pressure on the carotid below the thrill does not appreciably affect blood pressure or pulse rate.

The neck vessels are not visible. A pulsation may be felt in the suprasternal notch. In taking the blood pressure, cuff sounds are occasionally heard between 70-60 mm. of mercury in the left arm. No blood pressure can be obtained in the right arm. Occasionally, upon examination, we are able to feel a very faint radial pulse. The heart is normal in size. A faint blowing systolic murmur is heard over the aortic area and is transmitted upward to merge with the bruit of the carotid. The electrocardiogram is normal. A fluoroscopic examination of the great vessels demonstrates no abnormalities. Examination of the esophagus after barium shows no notching or displacement of this organ. The blood pressure in the patient's lower extremities measures $\frac{185-90}{85-90}$ The hands and feet are warm and pink. The Wassermann is negative. The remainder of the laboratory work is normal.

These findings may be explained by an acquired

lesion or a congenital anomaly. The acquired lesion must involve the orifice of the right innominate artery, the left common carotid and left subclavian artery, and of necessity must be a stenosis. A tumor of the upper mediastinum can be ruled out in the absence of the other symptoms. Multiple aneurysms are possible but improbable. The fluoroscopic examination rules out the possibility of aneurysm of the arch of the aorta which has been shown such symptoms. Dr. Turner suggests that hemorrhage within the media of the aorta is not uncommon in a great many diseases. Such hemorrhage involving the orfices of these vessels or a wider area by means of a dissecting aneurysm might possibly explain these symptoms. This possibility has not been ruled out.

Two known congenital lesions may explain the possibilities. The usual vascular tree in the adult is formed by the persistence of the fourth left aortic arch. It is possible that the right arch has persisted and that the blood supply of the right arm, head and neck arise from such a vessel. Against this possibility is the fact that the left subclavian most commonly arises from the left fourth arch and that the blood supply in its distribution is apparently no different from that in the right arm of the patient. The absence of notching of the esophagus, which would occur if the right fourth arch were present, is also against this possibility.

Another possibility is that the normal aortic arch has undergone a persistent atresia with the blood supply to the lower extremities being maintained through a patent ductus arteriosus. The objection to this possibility is that no cyanosis is present in the lower part of the body.

An interesting possibility is that the patient may have acquired an arteriovenous aneurysm in the right side of the neck in adult life which passes sufficient blood to decrease the cerebral circulation enough to increase the frequency of symptoms of cerebral anoxemia. Visualization of the great vessels apparently offers the only means of making a definite diagnosis in this case.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

November 2. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

November 6. Board of Directors, The Orleans Parish Medical Society, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

November 7. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

November 8. Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.
Touro Infirmary Staff, 8 p. m.

November 13. Orleans Parish Medical Society, 8 p. m. Election of Delegates to the Louisiana State Medical Society, and nomination of Officers, 1940.

November 14. Eye, Ear, Nose and Throat Club, 8 p. m.

November 15. Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.
Charity Hospital Surgical Staff, 8 p. m.

November 16. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

November 17. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.

November 20. Hotel Dieu Staff, 8 p. m.

November 21. Charity Hospital Medical Staff, 8 p. m.

November 22. Clinico-pathologic Conference Charity Hospital and L. S. U. Medical Center, 2 p. m.
French Hospital Staff, 8 p. m.

November 28. Baptist Hospital Staff, 8 p. m.

November 30. L. S. U. Faculty Club, 8 p. m.

During the month of October, besides the regular meeting of the Board of Directors, the Society held its regular meeting on Monday, October 9. The following scientific program was presented:

The Treatment of Trichomonas Vaginalis Vaginitis with Special Reference to a New Method by the Author.
By:.....Dr. Earl Conway Smith.
Discussed by Drs. Edwin L. Zander and closed by Dr. Smith.

Fractures of the Humerus.
By:.....Dr. Rufus H. Alldredge.
Discussed by Drs. Marvin P. Knight, Nathan H. Polmer, Guy A. Caldwell, and closed by Dr. Alldredge.

Gastroscopy in Surgery.
By:.....Dr. Donovan C. Browne.
Discussed by Drs. Alton Ochsner, A. L. Levin, Daniel N. Silverman, and closed by Dr. Browne.

Following the scientific program an executive

session was held when the reports of officers and committees for the third quarter were read.

The next regular meeting of the Society will be held on Monday, November 13. At this time election of Delegates to the Louisiana State Medical Society will take place. Nomination of officers for 1940 must be handed in to the Secretary before 9 p. m. on this same date.

The following doctors were elected to Active Membership: Drs. Rupert E. Arnell, Albert A. Maybeno, Norton W. Voorhies, and Virginia E. Webb; to Interne Membership: Drs. Robert W. Augustine, Ralph L. Bourgeois, Sanders A. Goodman, R. Gordon Holcombe, Jr., Marvin P. Knight, Ross D. Margraves, Morris Pasternack, Richard E. Selser, Henry M. Stern, and William Trachtenberg.

It is with regret that we report the loss by death of one of our active members, Dr. J. E. Isaacson.

Recently members have been solicited by "press photographers." The membership should be warned that the Society has in no way authorized such solicitation.

NEWS ITEMS

Dr. Maxwell E. Lapham addressed the graduating classes of the Schools of Medicine, Pharmacy and Nursing of the University of Tennessee at Memphis. His subject was "Postgraduate Medical Education."

Drs. Michael DeBakey, Dean H. Echols and Alton Ochsner attended the Seventh District Medical Society meeting in Lake Charles on Thursday, September 21. Dr. Ochsner also attended the meeting of the Third International Cancer Congress at Atlantic City, where he presented a paper on "Cancer of the Lung."

Dr. Joseph C. Menendez was elected Senior Vice-Commander-in-Chief of the Veterans of Foreign Wars of the United States at the national encampment held in Boston recently.

On September 28, 1939, Dr. Rena Crawford addressed the Women's Club of Picayune, Mississippi. Her subject was "What the Layman Can Do to Reduce Infant Mortality."

Dr. Carlo J. Tripoli has been appointed Professor of Medicine of the Graduate School of Medicine of Louisiana State University.

Dr. William H. Gillentine was a guest speaker before the Third District Medical Society at their meeting in Lafayette on September 28.

Dr. T. A. Watters attended the Central Neuro-Psychiatric Meeting in Indianapolis on October 6 and 7, and also attended the meeting of the Southern Psychiatric Association in Louisville on October 9 and 10.

Dr. John H. Musser attended the meeting of the Medical Council of the Veterans' Administration in Washington the week of October 10.

Dr. John R. Schenken was appointed Assistant Dean of the School of Medicine of Louisiana State University.

Dr. George J. Taquino attended a meeting of the Committee on Teachers of the American Academy of Ophthalmology and Otolaryngology held in Chicago, October 8. Later he attended the annual congress of the American College of Surgeons in Philadelphia, October 16-20, and visited cancer clinics at Memorial Hospital in New York.

Dr. H. Theodore Simon addressed the Sixth District Medical Society at Jackson, Louisiana, October 10. On October 13 he attended a meeting of the Clinical Orthopedic Society in Oklahoma City, and a meeting of the same Society in Little Rock, October 14. Before returning to New Orleans he attended the annual congress of the American College of Surgeons in Philadelphia.

Dr. Alton Ochsner attended the Graham and Barnes Hospital Reunions in St. Louis, Missouri, October 11-14. He also attended the annual congress of the American College of Surgeons in Philadelphia, where he was re-elected a Regent of the College for a term of three years. Dr. Ochsner took part in several discussions at the meeting, and talked before a number of lay organizations.

Among other New Orleans doctors who attended the annual congress of the American College of Surgeons were Drs. Mims Gage and Ambrose H. Storck.

TREASURER'S REPORT

Actual book balance 8/31/39	$3,865.17
Credits	$ 250.49
Total credits	$4,115.66
September expenditures	$ 450.04
Actual book balance 9/30/39	$3,665.62

LIBRARIAN'S REPORT

During the months of August and September, 119 volumes were added to the Library. Of these 56 were received by gift, 45 by binding and 18 from the New Orleans Medical and Surgical Jour-

nal. Notation of new titles of recent date is made below.

Our records show that 1,881 volumes were loaned to physicians during August and September, or more than 3 to each member of the medical society. An additional 490 books and journals were loaned to students, bringing the total circulation for the month to 2,371. These figures do not include the constant use of materials in the Reading Rooms.

Members of the staff have collected material on the following subjects at the request of physicians:

Complications resulting from gallbladder surgery.

Carcinoma of cervix complicating pregnancy.

Stricture of rectum caused by lymphogranuloma inguinale.

Torsion of the testis and spermatic cord.

Recent advances in gallbladder diseases.

Urologic aspects of sterility.

Urinary tuberculosis.

Vesicular lesions of skin.

Miller-Abbot tube in intestinal obstruction.

Traumatic epilepsy.

NEW BOOKS

Lien-Teh, Wu: Cholera, 1934.

A. M. A.: New and Non-Official Remedies, 1939.

Fishberg, A. M.: Hypertension and Nephritis, 1939.

Imperatori, C. J.: Diseases of the Nose and Throat, 1939.

Treves, Sir Frederick: Student's Handbook of Surgical Operations, 1939.

Spaeth, E. B.: Principles and Practice of Ophthalmic Surgery, 1939.

Wiener, Meyer: Surgery of the Eye, 1939.

Campbell, W. C.: Operative Orthopedics, 1939.

Livingston, E. M.: End Results in the Treatment of Gastric Cancer, 1939.

McClure, C. W.: Functional Activities of the Pancreas and Liver, 1937.

Fluhmann, C. G.: Menstrual Disorders, 1939.

Clark, LeMon: Vaginal Diaphragm, 1939.

McCoy, Elizabeth: Anaerobic Bacteria and Their Action in Nature and Disease, 2v.

Spicer, F. N.: Trauma and Internal Disease, 1939.

Corrigan, C. E.: Clinical Diagnosis of Swelling, 1939.

Gerling, C. J.: Short Stature and Height Increase, 1939.

Hoopes, G. G.: Out of the Running, 1939.

Insurance Statistics Service: Standard Body Parts, 1939.

Dickinson, F. D.: Functional Disorders of the Foot, 1939.

Gilbert C. Anderson, M. D.,
Secretary.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

New Orleans Graduate Medical Assembly	February 26-29, 1940	New Orleans.
Louisiana State Medical Society	April 22-24, 1940	New Orleans.

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
Morehouse	Second Tuesday of every month	Bastrop.
Orleans	Second Monday of every month	New Orleans.
Ouachita	First Thursday of every month	Monroe.
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting of the society was called to order on October 5, 1939 by Dr. D. M. Moore in the absence of the president, Dr. John Pracher.

The scientific program consisted of a paper presented by Dr. J. B. Vaughan on hypertension which was relieved by the removal of a kidney. Discussion followed by Drs. Graves, Wood and Moore.

The application for membership of Dr. Wood H. Scott was unanimously accepted.

L. L. Titche, M. D., Sec.

LAFAYETTE PARISH MEDICAL SOCIETY

The quarterly meeting of the Third District Medical Society was held at the Charity Hospital, Lafayette, on Thursday, September 28, 1939 at 7:30 p. m.

The scientific program consisted of a paper, "Recent Advances in the Treatment of the Infectious Diseases," by Dr. William H. Gillentine, of New Orleans.

R. Sidney Hernandez, M. D., Sec.

IBERIA PARISH MEDICAL SOCIETY

The Iberia Parish Medical Society, recently met at a fall meeting, at the dedication of the New

Tilly Clinic-Hospital. The new four story brick building was acquired from the Iberia Parish School Board. After the meeting Dr. Tilly served the visitors of the professions, medical, dental and pharmaceutical of the parish, including the clergy, with a delightful barbecue supper.

SOUTHERN MEDICAL ASSOCIATION

The thirty-third annual meeting will take place in Memphis, Tenn., November 21-24. The general headquarters will be at the Hotel Peabody and the meetings and exhibits will be at the Municipal Auditorium.

The program for the Memphis meeting will follow in general the plan of recent meetings. Tuesday will be "Memphis Day," with a program of short clinical presentations by Memphis physicians. On Tuesday evening there will be a public session with a program arranged for the laity.

On Wednesday morning there will be a general clinical session with a program arranged and presided over by the President, Dr. Walter E. Vest of Huntington, W. Va. In the afternoon, the nineteen sections of the Association and the three conjoint meetings will convene. A general session, featuring the address of the President followed by the President's Reception and Ball, will take place on Wednesday evening.

The fraternity luncheons and alumni reunions will be held on Thursday and the meeting will adjourn on Friday afternoon.

DR. HARRISON HONORED

Dr. Roy B. Harrison has been named a member of the Advisory Council on Medical Education to fill the vacancy caused by the death of Dr. Harold Rypins, Secretary, New York State Board of Medical Examiners.

Dr. Willard C. Rappleye, President of the Council, has appointed Dr. Harrison a member of the Committee on Internships and also a member of the Committee on Interstate Endorsement of Medical Licensure.

A meeting of the Committee on Internships will be held Decmber 2 in Chicago, which Dr. Harrison plans to attend.

LOUISIANA PHYSICIANS RECEIVED INTO AMERICAN COLLEGE OF SURGEONS

Fourteen Louisiana physicians were made fellows of the American College of Surgeons at its annual meeting in Philadelphia. The list includes Drs. R. H. Alldredge, Tulane, 1932; M. E. DeBakey, Tulane, 1932; F. E. LeJeune, Tulane, 1920; Maurice Lescale, Tulane, 1921; C. J. Miangolarra, Tulane, 1926; C. B. Odom, Tulane, 1932; A. Neal Owens, Emory, 1926; R. M. Penick, Jr., Johns Hopkins, 1932; all of New Orleans. H. A. Durham, University of Vermont, 1909; L. W. Gorton, Vanderbilt, 1915, both of Shreveport; A. Scott Hamilton, Tulane, 1931, of Monroe; R. J. Spedale, Tulane, 1930, of Plaquemine.

Dr. Owens received the rare honor of having his 100 case histories, submitted for membership, selected as the second best set of those submitted to the college. Dr. Owens is Assistant Professor of Surgery in the Tulane University School of Medicine.

NEWS ITEMS

Dr. Oswald E. Denney has been promoted and commissioned as Senior Surgeon in the Regular Corps of the U. S. Public Health Service, effective July 1, 1939.

Dr. Harris Isbell, formerly of New Orleans, has been promoted and commissioned as Passed Assistant Surgeon in the Regular Corps of the U. S. Public Health Service, effective August 1, 1939.

The American Academy of Dermatology and Syphilology will hold its second annual meeting at the Bellevue-Stratford Hotel, Philadelphia, November 6-8 inclusive.

TETANUS IMMUNIZATION

Tetanus toxoid is required by law to be given to all soldiers in France. It is suggested that this be given to anyone sensitive to horse serum if their occupation or avocation is likely to bring about injury. This applies particularly to children.

The U. S. Public Health Service has put out the fifth in a series of folders on venereal disease entitled "Gonorrhea—The Crippler." This booklet may be purchased for one dollar a hundred. It is an excellent educational pamphlet which can be handed to any patient who has gonorrhea and tells them what to do and how to avoid transmission of the disease. Those interested may view a copy of the booklet in the office of the Journal.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending September 16, there were 162 deaths in the City of New Orleans, divided 94 white and 68 negro and 17 in children under one year of age. The following week was characterized by a very sharp drop in the death rate, only 122 deaths occurring as compared with 154 for the three year agerage. Of these 76 were white and 46 negro, while 19 were in small infants. The next week, which came to a close September 30, showed an increase of 19 in the number of deaths in the city; in spite of this increase the death rate was still well under the

three year average. The increase in part was due to the increase in number of deaths in small infants, 22 expiring, 14 of whom were white children. The racial distinction in the total number of deaths was 93 white and 48 negro. The death rate for the week ending October 7 remained somewhat stationary, 146 deaths being reported, of which 94 were white, 52 negro and 15 infants the latter divided practically evenly between the two races.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the thirty-seventh week of the year, ending September 16, the astounding number of 369 cases of syphilis was listed. Other diseases in figures greater than ten include 37 cases of whooping cough, 32 of pulmonary tuberculosis, 29 of cancer, 26 of pneumonia, 17 of gonorrhea, 14 each of malaria and diphtheria, 13 of typhoid fever and 10 of typhus fever. This large number of typhus fever cases is particularly interesting, being more than twenty times greater than the five year average for this week in the year. Four of these cases were reported in Calcasieu, two in Jefferson Davis and Orleans and one each in Iberia and Washington parishes. In the next week, which terminated September 23, there were reported 228 cases of syphilis, 41 of pulmonary tuberculosis, 35 each of gonorrhea and cancer, 17 each of diphtheria and malaria and typhoid fever, and 16 of whooping cough. This week there were again listed an unusually large number of typhus fever cases, five in number, emanating from Calcasieu, Lafayette, Lafourche and St. Martin parishes. Syphilis showed a smart diminution in the number of cases listed during the week of September 30 with 147 appearing in the records; other diseases in figures greater than ten included 45 cases of pulmonary tuberculosis, 24 of cancer, 23 of whooping cough, 19 of pneumonia, 18 of gonorrhea, 14 of typhoid fever and 13 of diphtheria. Again this week five cases of typhus fever were reported, two from Orleans Parish and one each from East Feliciana, Lafayette, and St. James parishes. For the first time in many months a case of rabies was reported. For the last week for which figures are available, namely that of October 7, there were listed 130 cases of syphilis, 29 of pulmonary tuberculosis, 27 of cancer, 16 of pneumonia, 13 of diphtheria and 12 each of malaria and typhoid fever. Physicians of the state evidently are on the watch out for typhus fever, four cases being reported, two from Caddo and one each from Calcasieu and Pointe Coupee parishes.

JULIUS E. ISAACSON, M. D.

(1894-1939)

The medical profession of New Orleans was shocked by the sudden death of Dr. Isaacson on October 17. He was Senior House Surgeon at Hotel Dieu where he had served his internship. For a period of time, Doctor Isaacson was connected with the Tulane University Medical School and in 1933 and 1934 he was President of the Lighthouse for the Blind. The medical profession of New Orleans loses one of their active leaders and younger men. His demise will be a real loss to his innumerable friends and patients.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

FIRST FALL MEETINGS

CADDO PARISH

The Woman's Auxiliary to the Caddo Parish Medical Society held the first meeting of the year on Wednesday, October 11, at the Woman's Department Club, Shreveport. The meeting was called to order by the President, Mrs. Clifford P. Rutledge, who gave an inspiring address in which she stated that her three objectives for the year were, more members, more voters, and more readers.

Mrs. S. M. Blackshear, President of the State Auxiliary, then discussed the aims and accomplishments of the State Auxiliary. Mrs. Blackshear was the guest of honor at the reception and musical which followed. The reception rooms were especially lovely with fall flowers of fuschia and

gold; there were many members to meet Mrs. Blackshear.

Mrs. N. Judson Bender,
Publicity Chairman.

LAFAYETTE PARISH

The first quarterly meeting of the Woman's Auxiliary to the Lafayette Parish Medical Society met on October 19 at the home of Mrs. L. B. Long in Lafayette. Mrs. S. M. Blackshear, State President, who was a special guest at this meeting, addressed the members on the work of the Auxiliary in Louisiana. During the business meeting the following officers were elected: president, Mrs. L. A. Prejean, Scott; vice-president, Mrs. R. Sidney Hernandez, Duson; secretary-treasurer, Mrs. J. J. Burdin, Lafayette. Members and guests were entertained at tea after the meeting.

ORLEANS PARISH

At the first fall meeting of the Woman's Auxiliary to the Orleans Parish Medical Society, which was held at the Orleans Club on October 11, the members enjoyed a program dealing with world affairs. Mr. Gung-Hsing Wang, Chinese Vice-consul, discussed "The International Situation through the Chinese Window." Mr. Gung-Hsing Wang's talk was thoroughly instructive and interspersed with interesting highlights of his diplomatic career.

With the increased activities of the Red Cross all over the country, and a demand for extra supplies, auxiliary members will work at the Red Cross headquarters each Thursday, from nine to twelve. Rounding out the business session, a nominating committee was appointed to bring in the names of officers to be voted upon in December. These names may, according to the constitution, be supplemented at the November meeting by nominations from the floor.

A reception and tea followed at which Mrs. Roy Carl Young, President-elect of the State Auxiliary, and Mrs. P. A. Donaldson, President of the Second District Auxiliary, were honored guests.

Mrs. Edwin R. Guidry,
Publicity Chairman.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Medical Society met on October 12 in Monroe, at which time the Auxiliary entertained at a luncheon for the State President, Mrs. S. M. Blackshear, who has been visiting many of the parish auxiliaries. The meeting was well attended.

Mrs. Courtland P. Gray, President, presided over the business meeting, and the educational program which followed. Dr. Pracher, President of the Ouachita Medical Society, spoke to the ladies on "Blood and Blood Transfusion." Mrs Blackshear gave an outline of the work being done throughout the state.

Mrs. J. W. Cummins,
Corresponding Secretary.

SECOND DISTRICT

The Second District Auxiliary met at the home of Mrs. John E. Clayton in Norco on October 17. Mrs. P. A. Donaldson, President of the Auxiliary, presided.

This is one of the more recently organized, but active auxiliaries, and the meeting was attended by many out-of-town ladies who are interested in its growth and development. After the business session, the guests were entertained at a delightful tea. Mrs. Roy Carl Young, Covington, President-elect of the State Auxiliary, and Mrs. S. M. Blackshear, New Orleans, State President, were among the out-of-town visitors.

Respectfully submitted,
Mrs. Edgar Burns,
Press and Publicity Chairman.

BOOK REVIEWS

Hypertension and Nephritis: By Arthur M. Fishberg, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 779. Price $7.50.

This standard work on hypertension and nephritis has been revised and brought up to date. Many chapters have been rewritten. Those dealing with Goldblatt's experimental production of hypertension are of particular interest at present. The fact that this book has gone through four editions speaks for itself. It is, in the reviewer's opinion, the most authoritative work on these subjects in the English language. It meets the needs of the practitioner as well as the student of nephritis and hypertension. It cannot be too highly recommended.

RANDOLPH LYONS, M. D.

The Anaerobic Bacteria and Their Activities in Nature and Disease: A Subject Bibliography: Compiled by Elizabeth McCoy and L. S. McClung. Berkeley, University of California Press, 1939. 2 vols.

The compilers have assembled about 10,500 original articles and monographs making a subject index of approximately 120,000 entries. This includes most of the important works performed on the anaerobic bacteria, and makes an excellent reference for one interested in this subject.

JOSEPH ZISKIND, M. D.

Sensible Dieting and the Engel Vital Calorie Diets: By William Engel, M. D. New York, Alfred A. Knopf, Inc., 1939. Pp. 408. Price $2.50.

This handy little book is suitable more for use

by the laity. Its main feature is a collection of breakfast, lunch and dinner menus for every day in the week given in detail and arranged according to the total calories required by each individual. These diets are preceded by a sensible and plain explanation of the method and result to be attained. It is a safe book to be placed in the hands of patients, who will find it a book good for quick reference.

NARCISSE F. THIBERGE, M. D.

Principles and Practice of Ophthalmic Surgery: By Edmund B. Spaeth, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 835. Price $10.00.

Ophthalmology is indebted to the author for the most complete textbook on this subject that has yet been written in English. It contains over 800 pages with 400 illustrations, which are exceptionally instructive. The table of contents, as well as the indices of authors and subjects, are complete. This volume presents a digest of our knowledge of ophthalmic surgery, and methods preferred by the author.

Dr. Spaeth's great experience, especially in the field of plastic surgery, is responsible for the generous chapters on exophthalmos, orbit and lid. Those interested in plastic surgery of the eye will find this book a veritable treasure house. Of especial interest are the sections on keratoplasty, muscle surgery, and glaucoma. The resumés of procedures recommended by the author in heterotropias, ptosis, and glaucoma are a valuable addition. Others could have been added to advantage.

Every experienced ophthalmic surgeon has acquired individualities of technic that have proved of value to him. Some of the author's pet ideas will appeal to one ophthalmologist, and others to another. These represent but minor differences of opinion in the application of fundamentals adapted to individual patients and surgeons, and in no way detract from the merits of this exceptionally complete volume.

Although somewhat detailed for the beginner, congratulations to Dr. Spaeth for having given us an outstanding book of which American ophthalmology can be proud.

CHARLES A. BAHN, M. D.

Surgery of the Eye: By Meyer Wiener, M. D., and Bennett Y. Alvis, M. D. Philadelphia, W. B. Saunders, 1939. Pp. 419; illus. Price $8.50.

Wiener and Alvis have presented a hand atlas on ophthalmic surgery in which they have incorporated, together with a few selective surgical procedures, original work of their own, and their modification of steadfast technics.

Their book for the above reason is not rehash nor merely another atlas, or a duplicate of the work of Mueller, but in one small volume originality is brought forth gloriously and the art of ophthalmic surgery is advanced to a most pleasing extent.

The book, in particulars, is nicely gotten up. The artist, A. J. Hofsommer, merits praise for his labor, his pictures convey artistic ability and they tell a story in brief which otherwise would require pages of script. The contents of the book are well divided, the sequence of the stories pleasing and the procedures most enlightening.

THEODORE J. DIMITRY, M. D.

The Student's Handbook of Surgical Operations: By Sir Frederick Treves, G. C. V. O., C. B., LL. D., F. R. C. S. Sixth edition revised by Cecil P. G. Wakeley, D. Sc., F. R. C. S., F. R. S. E., F. A. C. S. (Hon.), F. R. A. C. S. New York, Paul B. Hoeber, Inc., 1939. Pp. 563; illus. pl. Price $5.00.

This remarkable little book has been popular since its first appearance in 1892. It is small and concise though it contains 550 pages. The subject matter is divided into basic operations, such as, ligations of arteries, amputations, operations on the nerves and into regional operations, i.e., operations on the head, operations on the neck. The descriptions of different operations, though short, give the essential steps with no attempt to describe the technic in detail. The diction is clear and unobtrusive so the facts become in reading the only feature of which one is conscious. This little volume contains a surprising amount of information and can be recommended to students and even practitioners who may be interested in a cursory review of this type. The operations described are modern and in most instances are the procedures of choice. The limitations of the book are obvious: There is no effort to show indications for operations nor to discuss diagnosis. Its attempt to retain its size to one which might be considered very convenient for the student results in a certain incompleteness. Alternate procedures which might be better for a variable condition may not be discussed.

HOWARD MAHORNER, M. D.

Functional Disorders of the Foot: Their Diagnosis and Treatment: By Frank D. Dickson, M. D., F. A. C. S., and Rex L. Diveley, A. B., M. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1939. Pp. 305; illus. Price $5.00.

This book summarizes the knowledge and ripe experience of two of the foremost men in the practice of orthopedic surgery upon a subject much too neglected in our textbooks and scientific writings. The first chapter on evolutionary development of the human foot is an interesting and adequate review as an introduction to the second chapter on anatomy of the foot. In this chapter the essentials of structure as related to function are

well chosen and presented with good illustrations. Physiology of the foot is next presented clearly but without waste of words. Imbalance is discussed with relation to architectural defects, ligamentous weakness and muscle imbalance and is accompanied by excellent photographs and x-ray tracings.

Following these introductory chapters, the authors take up the routines for history taking and examination and proceed with excellent discussions of childhood foot disorders and their correction, foot imbalance in adolescence which properly includes the various accepted operative procedures for correction, and foot imbalance in adults. Under the latter heading the many defects of adult feet are well portrayed and a useful method of treating each of them is carefully presented with timely illustrations.

The final chapters dealing with toe deformities, operative measures for correction of hallux valgus and hammer toes, affections of the nails and skin, tarsal and metatarsal bones, affections of the heel, foot strapping and foot exercises are well written, practical and helpful.

The book is beautifully compiled,—the printing and illustrations far above the average seen in medical books. Every page and chapter of this complete monograph reveal thoroughness, painstaking care and originality on the part of the authors, combined with excellent and artistic presentation of their work by the publisher. It should be in the library of every practitioner and student who listen to complaints from patients regarding their feet.

GUY A. CALDWELL, M. D.

Out of the Running: By G. Gertrude Hoopes. Springfield, Ill., Charles C. Thomas, 1939. Pp. 158. Price $2.00.

The autobiography by G. Gertrude Hoopes, "Out of the Running," is a revelation even to one who is in daily contact with handicapped patients, many of whom are very like her. Often one feels the need of knowing about these patients just the things she reveals in such a straightforward manner. Her attitude toward her own handicaps, her early struggles and frustrations of her efforts to make those about her comprehend her desires and thoughts, the tremendous strides she made mentally and physically as soon as she established means of communication and learned to read, should encourage everyone who shares the responsibility of the care of such children to spare no effort to assist them to gain a foothold on the ladder of progress.

The tremendous help this handicapped patient derived from religion in her early years and the evidence she presents that it has been the most patent factor enabling her to maintain self control throughout the many vicissitudes of her life remind us forcibly that physically impaired patients should always have access to this source of strength and happiness.

This revealing autobiography should be read by everyone who has contact with or shares in the care of a spastic or defective child and by many who themselves are laboring under some incurable handicap. It should be of especial interest to psychologists, teachers, and religious workers as well as to physicians and nurses.

GUY A. CALDWELL, M. D.

Cancer Handbook of the Tumor Clinic, Stanford University School of Medicine: By Eric Liljencrantz, M. D. San Francisco, Stanford University Press, 1939. Pp. 99. Price $3.00.

This is a well condensed volume of 99 pages devoted to the most important aspects of neoplasia as compiled in one of the leading tumor clinics of this country. The book opens with a general, but brief, discussion of the cancer problem. In this first chapter the theories of the etiology of cancer are brought up to date in a clear and concise manner.

The second chapter is devoted to the principles of radiation therapy, which includes in outline form those tumors which are radioresistant and those which are radiosensitive. The most common malignant neoplasms occurring in each system of the body are discussed from a standpoint of diagnosis, treatment and prognosis in separate chapters.

The book avoids controversy and, as a whole, is a very good condensation of what is seen in an active cancer clinic. It will be found useful as a reference and an easy means of review for those whose practice includes the management of cancer patients.

W. S. RANDALL, M. D.

Surgical Treatment of Hand and Forearm Infections: By A. J. C. Brickel, A. B., M. D. St. Louis, C. V. Mosby Co., 1939. Pp. 300. Price $7.50.

It is an irrefutable fact that the hand of man is one of the most important parts of his anatomy. Interference with the function of that member of the body leads to tragedies which are still not adequately appreciated. Despite the fact that Kanavel et al have accomplished much by their pioneering efforts to portray the fundamental structural characteristics which determine the course or limits the ravages of infectious processes in the hand, our understanding is still imperfect, and further work is indicated.

Doctor Brickel has given to the profession a definite impetus to continue the work of that great pioneer, A. B. Kanavel. The anatomic studies included in his textbook are certainly worthy of comment. The undergraduate, however, may find some difficulty in comprehending the detailed dis-

cussion since it is written in highly technical terminology. A study of the diagrams themselves, nevertheless, is illuminating both to students and practitioner.

The roentgenologic studies of the spaces of the hand are comparable to those of Kanavel's book, but actually offer no improvement. Doctor Brickel does correlate ingeniously the clinical picture with his various demonstrations.

The body of the text naturally includes the disease processes encountered in the hand and forearm. The description of the various infectious processes occurring above the fingernails is an advance in the classification of these lesions. As well emphasized by Doctor Brickel, minor and benign processes are only too frequently poorly understood and improperly managed because of the lack of clinical experience of the attending surgeon.

He adds little or nothing to the clinical study of infections of the spaces of the hand, but the records of his clinical experiences revealed in his follow-up studies and end results do inspire the reader.

This book does represent a step forward in clearing up our all too clouded conceptions of this important subject, and is recommended to the profession.

L. SIDNEY CHARBONNET, JR., M. D.

Heart Patients, Their Study and Care: By S. Calvin Smith, M. D., Sc. D. Philadelphia, Lea & Febiger, 1939. Pp. 161. Price $2.00.

This small volume, of one hundred sixty-one pages, divided into twenty-three chapters, is written for the general practitioner as a quick reference for information that is direct, concise and constructive. As a whole the book very nearly comes up to the intent of the author.

There are a few statements that would not be acceptable to all, such as the statement on page twenty that "genuine heart pain will be associated with definite physical findings." This is certainly not always true.

Chapter five is devoted to laboratory aids in diagnosis including electrocardiography. He places too much importance on this method of examination as he leads one to expect too much of the electrocardiogram.

The statement made on page seventy-three that "sinus arrhythmia is never found in a heart that is diseased," is open to question. All would not agree with his gloomy predictions as to the effect of athletics on youthful hearts. One cannot agree with his statement that "a slow deliberate pulse rate of sixty or less of the plateau type and a split first sound of the heart should arouse serious suspicion of syphilis." Especially would one disagree with the statement that "the electrocardiograph writes syphilis in bold vigorous strokes."

There is much good advice in this little book, yet it is a little weak on treatment and many of the statements would not be accepted by cardiologists generally. It should prove useful to the practitioner who has not the time or the opportunity to keep abreast of all the newer methods of diagnosis and the treatments of heart disease.

J. M. BAMBER, M. D.

In the October issue of this Journal a review appeared of the new monograph by Livingston and Pack, titled "End-Results in the Treatment of Gastric Cancer." The statement was made that this volume was *reprinted* from the authors' larger work, "The Treatment of Cancer and Other Diseases." The latter volume has not yet reached publication, and thus the volume on gastric cancer is *preprinted* instead of *reprinted* from the larger treatise. In consideration of the favorable review give this sectional preprinting we shall look forward to the opportunity of reviewing the general work as soon as it appears.

PUBLICATIONS RECEIVED

Colwell Publishing Company, Champaign, Illinois: Dr. Colwell's Daily Log for Physicians, 1940.

F. A. Davis Company, Philadelphia: Diagnostic Signs, Reflexes and Syndromes standardized by William Egbert Robertson, M. D., F. A. C. P., and Harold F. Robertson, B. S., M. D., F. A. C. P. Gynecology by P. Brooke Bland, M. D., F. A. C. S., assisted by Arthur First, M. D.

Lea & Febiger, Philadelphia: A Textbook of Occupational Diseases of the Skin by Louis Schwartz, M. D., and Louis Tulipan, M. D.

W. B. Saunders Company, Philadelphia: Nutrition and Diet in Health and Disease by James S. McLester, M. D. Diseases of the Foot by Emil D. W. Hauser, M. S., M. D.

Charles C. Thomas, Springfield, Illinois, and Baltimore, Maryland: The Neurogenic Bladder by Frederick C. McLellan, M. S., M. D. Blood Groups and Blood Transfusion by Alexander S. Wiener, A. B., M. D.

The Williams and Wilkins Company, Baltimore: Treatment of Some Common Diseases edited by T. Rowland Hill, M. D. (Lond.), M. R. C. P. (Lond.). Handbook of Bacteriology by Joseph W. Bigger, M. D., Sc. D. (Dublin), F. R. C. P. I., M. R. C. P. (Lond.), D. P. H., M. R. I. A. A Synopsis of Surgical Anatomy by Alexander Lee McGregor, M. Ch. (Edin.), F. R. C. S. (Eng.). Physiological Chemistry by Albert P. Mathews, Ph. D. Obstetrical Practice by Alfred C. Beck, M. D. The Dysenteric Disorders by Philip Manson-Bahr, C. M. G., D. S. O., M .D., F. R. C. P. Stedman's Practical Medical Dictionary by Thomas Lathrop Stedman, A. M., M. D., and Stanley Thomas Garber, B. S., M. D.